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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XVI. CHICAGO, ILL., OCTOBER 7, 1915. Number 11.

Over
Two
Million
Dollars

invested in concrete construction by the Lackawanna Railroad!

—The Tunkhannock viaduct will be the largest PERMANENT viaduct in the world.

TUNKHANNOCK CREEK VIADUCT; 2,300 FEET LONG, 245 FEET HIGH; REQUIRING 200,000 BARRELS OF PORTLAND CEMENT.

LIBRARY OF CONGRESS OCT 16 1915

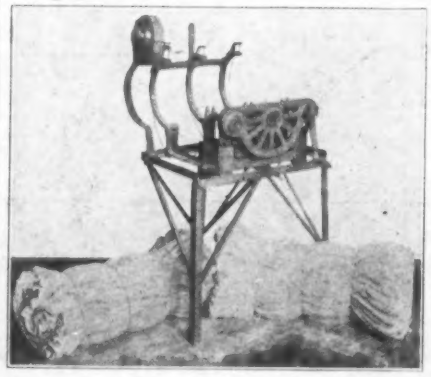
MARTIN'S CREEK VIADUCT, ELEVEN SPANS; SEVEN OF 150 FEET, TWO OF 100 FEET AND TWO OF 50 FEET. NINETY-FIVE THOUSAND YARDS OF CONCRETE WILL BE USED.

THE two viaducts now rapidly nearing completion are additional visible recognitions of the economy of concrete construction.

PERMANENT IMPROVEMENT

is the aim of the railroad builder of today; and the inevitable choice developed through experience is

CONCRETE



Bag Bundler

IT COUNTS 'EM AND BUNDLES 'EM

Saves Time
Eliminates Errors

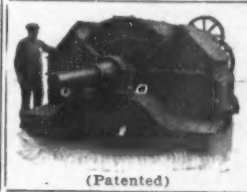
A few of our many customers say:

"It does the work of three men."
"Will shortly order three more."
"Would not take three times what we paid for it."
"It is a wonderful money saver."

Write for prices

The Faeberhill Manufacturing Co.
1392 East 40th St., CLEVELAND, O.

Agents wanted in every city. A side line for machinery and builders supply salesman.



(Patented)

"PENNSYLVANIA"

Hammer Crushers For Crushing and Pulverizing Lime, Limestone, Gypsum, Marl, Shale, Etc.

Main Frame of Steel, "Ball and Socket" self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.
No other hammer Crusher has such a big Safety Factor.

Pennsylvania Crusher Co.
New York PHILADELPHIA Pittsburgh

CRESCENT

Portland Cement

WAMPUM, PENNSYLVANIA

Daily Capacity 7000 Barrels

ALPENA HURON MICH. PORTLAND CEMENT COMPANY

The Quality Cement of the Middle West

MORE THAN FIFTEEN YEARS OF SATISFACTION

THREE PLANTS: ALPENA — DETROIT — WYANDOTTE

HURON AND WYANDOTTE

Water and Rail Facilities Best Serve the Entire Middle West

EVERY BARREL TESTED AND GUARANTEED. SOLD BY THE BEST DEALERS EVERYWHERE

Main Office: 1525 FordBldg., Detroit, Michigan

Daily Capacity 3000 Barrels

WYANDOTTE PORTLAND CEMENT CO. WYANDOTTE, MICH.

The Leading Concrete Cement

Beautiful Houses from Illinois to Massachusetts are Roofed with Reynolds Flexible Asphalt Shingles

A multitude of pretentious residences in a score of states are giving ample proof of the long-lasting surface of Reynolds Flexible Asphalt Shingles.

Every type of modern home can be protected and beautified, at lower cost, with these time-tried, weather-tested shingles. They withstand the ravages of driving rain, pelting hail, hottest sun and heaviest snow without warping, cracking, splitting, curling or blowing off. Sparks cannot set them of fire. Long Exposure cannot dull their rich color. Adaptable to every style of pitched roof, and make possible unusual architectural effects, such as roll edges, thatch effects and rounded corners.

Reynolds Asphalt Shingles

Guaranteed for 10 years—will wear many years longer—Write for liberal agency proposition.

Rough-surfaced weather defiers made of crushed slate or granite securely embedded in pure Asphalt. Natural colors of garnet, red or gray-green which *never fade and never need painting*. We are the original makers of flexible asphalt slate shingles and tested them for ten years before putting them on the market. They are uniform in size—8 ins. by 12½ ins.—and are laid 4 ins. to the weather. Easily and quickly laid.

Let us send you a booklet showing photographs of modern houses roofed with Reynolds Asphalt Shingles. Write for a copy TODAY.

H. M. REYNOLDS ASPHALT SHINGLE CO.
Original Manufacturer Grand Rapids, Mich.
Established 1868 Members of National Builders' Supply Association

Wheeling Wall Plaster Co.

WHEELING, W. VA.

WHEELING WALL PLASTER UNIFORMLY GOOD

The Building Material Supply House of the Ohio Valley

CAR LOADS AND LOCAL SHIPMENTS AT WHOLESALE PRICES

Try Our Service

United States Custom House and Postoffice, Omaha, Neb
KALLOLITE PLASTER USED

Kallolite Cement Plaster

Was used on the Omaha Post Office, as well as many other

Government and Public Buildings.

Kallolite Cement Plaster is manufactured from the Purest Gypsum Rock found in the United States as shown by last Government Report.

CARDIFF GYPSUM PLASTER CO.

☛ **Write for literature.** **FT. DODGE, IOWA**

About Bakup and Partition Tile—

You ought to handle our 4x5x12 and 5x8x12 BAKUP TILE made from high-grade "Ohio" fire clay. We have a nice stock from which to make prompt shipments.

You can also get PARTITION TILE from us in sizes 3x12x12 up to 12x12x12.

One shipment from us will easily convince you that our material is what you ought to handle.

Write us for prices, etc.

THE METROPOLITAN PAVING BRICK COMPANY
Canton, Ohio

? ARE YOU A LIME, CEMENT, STONE, OR SAND AND GRAVEL PRODUCER ?

Our Service is for You We are Engineers—Designers of Sand and Gravel Washing Plants—Manufacturers of Dull's Tubular Washer, Cableway Excavators, Screens, Conveying Equipment, Pulleys, etc.

See our full page advertisements in the previous and next issue of ROCK PRODUCTS AND BUILDING MATERIALS, or write today to our Chicago office.

The Raymond W. Dull Company, 1912 Conway Bldg., Chicago, Ill.

WELL ER-MADE

Duplex Bin Gates

DELIVERY GATES

Undercut Overcut Duplex Plain or Special

SCREENS :: ELEVATORS

Everything for handling Sand, Gravel and Crushed Stone

Weller Mfg. Co., Chicago

Undercut Bin Gates

Protect Your Walls—Marvel Window Chutes

protect against coal haulers and burglars. See the wings! What's the use of a pouch, anyway? Safety first. Marvels lock automatically. Heavy and indestructible.

Mr. Material Man: If you are early enough you can have the exclusive agency in your city, and our prices are right. And the individuality of the Marvel Chute makes it easy to sell.

DIMENSIONS AND PRICES
Chutes with Solid Iron Doors

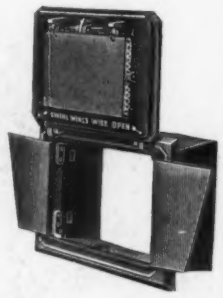
NOTE—Marvel Junior has no wings. All others have swinging wings.

	Marvel Junior No. 409	Marvel No. 413	Marvel No. 513	Marvel No. 618
Wall opening	17x24	17x24	17x30	22x33
Depth of body	9 in.	13 in.	13 in.	18 in.
Shipping weight	55	95	100	150
Price	$5.00	$7.50	$8.50	$12.00

Chutes with Wire Reinforced Glass in Door

	Marvel Junior No. 109	Marvel No. 113	Marvel No. 213	Marvel No. 318
Shipping weight	00	110	125	160
Price	$6.00	$9.00	$10.00	$13.50

Chain opening attachment no extra charge.
Ask for Leaflet "R."



Interstate Mfg. Co., Oskaloosa, Iowa

PLYMOUTH CLAY PRODUCTS CO.

FORT DODGE, IOWA

PLYMOUTH GYPSUM CO.

FORT DODGE, IOWA

Manufacture what is known as QUALITY BRANDS

ORDER A CAR AND BE CONVINCED

Plymouth Plaster & Finishes
Plymouth Wood Fibre Plaster
Acolite Cement Plaster (the long keeper)
Exterior Plaster
White Sand Float Finish
Best Bros. Keene's Cement
Sackett Plaster Board
Tiger Brand Hydrated Lime
Fireproof Gypsum Partition Tile

Write for advertising matter and prices

BRANCH OFFICES: 1015 Lumber Exchange, Minneapolis
5040 St. Lawrence Ave., Chicago

NORTH-WESTERN PORTLAND CEMENT

NORTHWESTERN STATES PORTLAND CEMENT CO. — PORTLAND — NORTH-WESTERN — CEMENT — MASON CITY, IA.

The Reliable Portland Cement

A Portland Cement for the NORTHWEST

North-Western States Portland Cement Co.
MASON CITY, IOWA

MONARCH HYDRATED LIME

Dealers Everywhere—

YOU SHOULD HANDLE

Monarch Brand Hydrated Lime

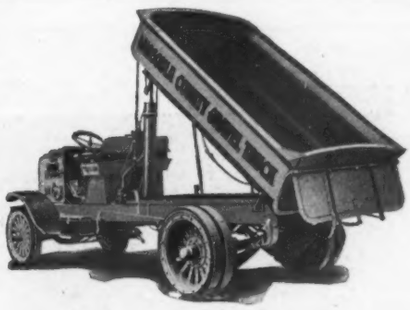
Because it's the only perfect Hydrated Lime and you can get increased business by recommending it. It's uniform. It's fine. It won't "blister" or cause "chip cracks" and "crazing."

You get the benefits of Monarch advertising service. You get the business that others are getting now.

Don't neglect this chance to increase your lime sales.

Ask us how we can help you sell Monarch Hydrated Lime. Write us that you want to be a "Monarch" man.

National Lime & Stone Co.
CAREY, OHIO



Investigate and you too will say *Kissel*

IN the haulage of crushed stone, sand, gravel and other heavy and bulky loads, 3½ to 4 and 6 ton KisselKar Dump Trucks are giving conspicuous service.

Staunch, sturdy, powerful and reliable, these trucks make sixty minutes yield the fullest hour.

Investigate and you, too, will say that on its actual record of performance, a KisselKar Truck in one of its seven sizes, is the truck that will best suit the demands of your work.

KISSELKAR TRUCKS

SEVEN SIZES

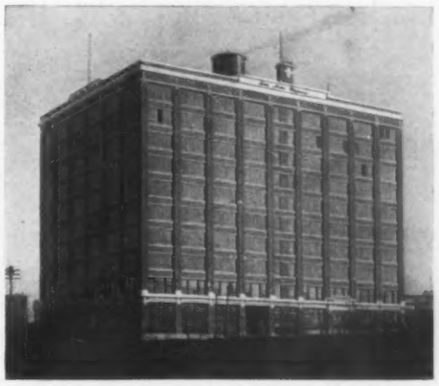
Owners of KisselKar Trucks are invariably truck enthusiasts. We would like to have you know their experiences.

We would like to have them tell you of the great dependability and economy of their trucks.

Ask us who are using KisselKar Trucks in your line—then write to them. Also say you would like a copy of our new portfolio with 500 illustrations—it will interest you.

Kissel Motor Car Co., 548 Kissel Ave., Hartford, Wis.

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.



Ford Motor Co. Building, Minneapolis, Minn.
Marquette Portland Cement Used

In the construction of their new building for Minneapolis, the Ford Motor Company could only use dependable materials.

More than 30,000 barrels Marquette Portland Cement were used in the construction of this modern, fireproof, sanitary building.

Marquette Cement Mfg. Co.
1335 Marquette Building Chicago

It is a fact that the contractors who are using the most "CHICAGO AA" Portland Cement, are the ones who have been using "CHICAGO AA" longest.

The permanent plaster for interior walls. May be retempered as often as necessary. Makes a perfect bond on concrete, brick, tile or lath.

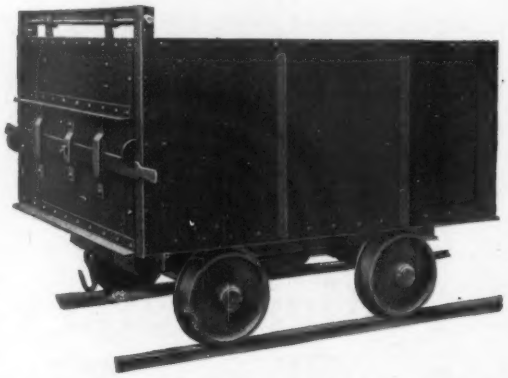
Best Bros. Keene's Cement
The Plaster That Stands Hard Knocks

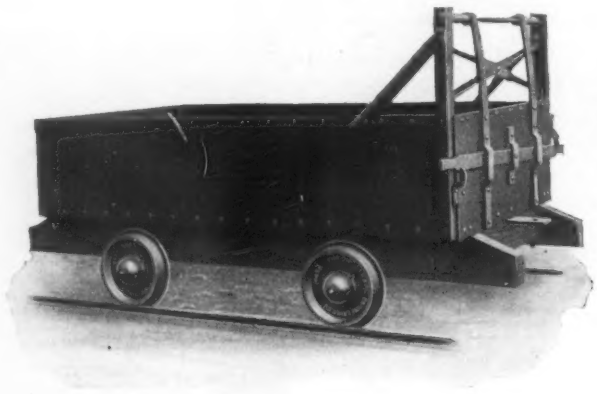
The Best Bros. Keene's Cement Co.
Established 1889
Dept. A, MEDICINE LODGE, KANSAS
New York—Chicago

LAKEWOODLINE BUILT TO LAST

What a Quarry Car Should Be

To answer the demands of quarry usage, strength and durability are the essential qualities. As specialists for 18 years in the development of small steel cars, we are in a position to offer you the utmost in **quarry car value.**





Lakewood Quarry Car No. 258

With heavy oak frame with side rails extended, forming bumpers at each end. Steel body with swinging end gate. This car is equipped with heavy chilled self-oiling wheels and continuous draw bar. Brake may be added if desired.

Lakewood Quarry Car No. 253

Built entirely of steel, is well braced and has swinging end gate. Heavy chilled wheels and self-adjusting bearings are furnished on this car. It can be equipped with brake if desired.

Write today for our Catalog No. 10

The Lakewood Engineering Company

Cleveland, Ohio

McCULLY

Gyratory Crusher

has perfect suspension for main shaft, removable countershaft bearing and steel gears.

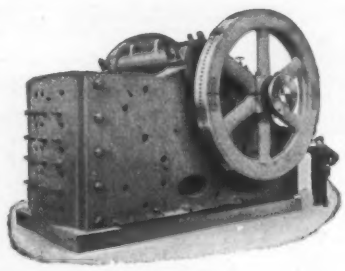
Efficient oiling devices, great strength and simple construction give a perfect rolling motion that minimizes power consumption and possibility of breakage. Described and illustrated in Bulletin PM 4-58.

Rock Crushers

The largest crusher in the world operating on trap rock is a

SUPERIOR

Jaw Crusher



Installed March, 1910, in the quarries of the Birdboro Stone Co., Birdboro, Pa. It produces 3500 to 4000 tons per day.

Built in the following Receiving Opening Sizes: 36"x24"; 42"x40"; 60"x48"; 84"x60". Described in Bulletin PM-4-58.

Write for Bulletin

Power & Mining Machinery Co.

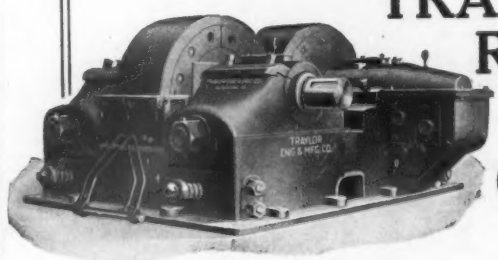
Works: Cudahy, Wis. **New York Office: 115 Broadway**

District Offices: Chicago, El Paso, San Francisco, Atlanta.

PRINCIPAL PRODUCTS

Rock Crushing Machinery, Mining and Smelting Machinery, Cement Making Machinery, Wood Impregnating Plants, Loomis Pettibone Gas Generators, Suction Gas Producers, Cyanide and General Steel Tank Works, Woodbury Jigging System, Lead, Burning. M 277.2

TRAYLOR ROLLS



For Fine

Crushing

By using **Traylor Crushing Rolls** you can count on **large tonnage** and **low cost** in the production of sand from your quarry.

Traylor Crushing Rolls are built to give maximum service under **all** conditions.

Our **Automatic Lateral Adjusting Device,** together with **Removable Bushings, Hold-Down Mechanism** and **Dust Proof Bearings** reduce the operating cost to almost nothing.

Send for Catalog "G-2"

We are crushing experts, having designed some of the largest crushing plants and crushers in the world. Our services are at your disposal.

Many features embodied in the design of our rolls are worthy of your investigation. Consult our Engineering Department as to your requirements.

Catalogue G-2 is full of interesting details. Send for it now.

TRAYLOR ENG. & MFG. COMPANY

Allentown, Pa.

Eastern Office 24 Church St., New York City

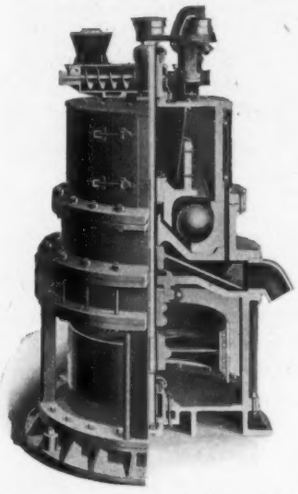
Western Office Salt Lake City, Utah

The Fuller-Lehigh Pulverizer Mill

A Complete Self-Contained Unit

The most economical mill for producing

Agricultural Limestone



- Reduces lump rock to 20, 40, 60, 80, 100 or 200 mesh.
- Requires no outside accessory equipment.
- Requires no overhead shafts, drives or screens.
- All material discharged from mill is finished product.
- No inside journals or bearings.
- No inside lubrication.
- Uniform feeding system.
- Constant and free discharge.
- Low installation cost.
- Low operating cost.
- Low lubricating cost.
- Dustless operation.

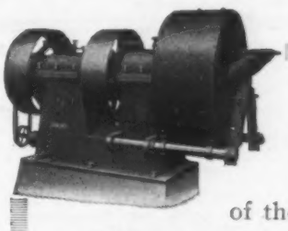
Built in sizes to meet the requirements of your trade. Grinds rock to meet the specifications of all Agricultural Experiment Stations.

SEND FOR CATALOG NO. 70

Lehigh Car, Wheel & Axle Works

Main Office and Works: **Catasauqua, Penna.**

Eventually Symons Discs



The Shafts of the Symons Disc Crushers

The inner shaft is made of forged steel.

The outer shaft is of a special semi-steel mixture made in our own foundry and absolutely uniform.

The pressure due to crushing is sustained by the large spherical surfaces of the ball on the inner shaft which is babbitted, and by the seat for same on the outer shaft which is accurately machined and polished. As these two surfaces revolve in the same direction and at the same speed there is very little movement between them. This movement is due to the angular motion of the inner shaft, relatively to the outer, due to the eccentricity of the inner shaft. This bearing, therefore, requires little attention, never heats and will last for seasons.

Since building Disc Crushers we have never had a broken shaft.

Hundreds of Disc Crushers reducing the hardest rock and ore are strong testimonials of what this crusher will do.

Manufactured and sold only by

Chalmers & Williams

1450 Arnold St., Chicago Heights, Ill.

New York Office: Equitable Building

Advantages of Our

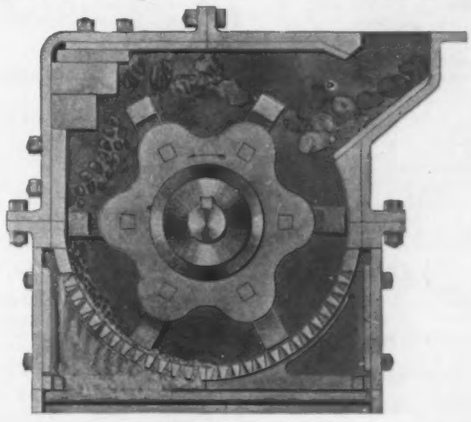
Portable Rock Crushing Outfit

The elevator is 16 feet long (Standard length)—and is typical of "Webb City," as there are no other elevators on the market that are similar. The elevator does not fold, but is laid back over the crusher by means of a worm and gear arrangement, thus eliminating the old troublesome points of the folding type. Another important feature is the distance from the ground to the feeding platform—only 48 inches on most of these crushers—this being approximately a foot lower than on any others.

Webb City & Carterville Foundry & Machine Works

Main Office: WEBB CITY, MO.

Economy in Pulverizing



The K-B Pulverizer

Built for Service and Durability

By the use of the best materials, upkeep cost in a K-B Pulverizer is reduced to a minimum; by correct design, capacity is increased to a maximum; thus making the K-B the most economical pulverizer ever built.

Why not request us to prove that we can save money for you?

The K-B Pulverizer Company, Inc.

86 Worth Street MANUFACTURERS **New York City**

CLASSIFIED BUSINESS DIRECTORY

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Faeberhill Mfg. Co. (bag tyers).
Jaite Company, The.
Urschel Bates Valve Bag Co.

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Chain Belt Co.
Dull & Co., R. W.
Goodrich Co., B. F.
Imperial Belting Co.
Link Belt Co.
Revere Rubber Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

BRICK.
Belden Brick Co.
Metropolitan Paving Brick Co.

BRICK CLAMPS.
The P. D. Crane Co.

BRICK PAVING.
Metropolitan Paving Brick Co.

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Atlas Car & Mfg. Co.
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Haiss Mfg. Co., Inc., Geo.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link Belt Co.
McMyler-Interstate Co.

CABLES.
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Dull & Co., R. W.
Sauerman Bros.

CALCINING MACHINERY.
Atlas Car & Mfg. Co.

CARS, INDUSTRIAL.
Atlas Car & Mfg. Co.
Austin Mfg. Co.
Haiss Mfg. Co., Inc., Geo.
Lakewood Engineering Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

CASTINGS.
Allis-Chalmers Mfg. Co.
Traylor Eng. & Mfg. Co.

CEMENT, CAEN STONE.
Cleveland Bldrs.' Supply Co.

CEMENT, HYDRAULIC.
Carolina Portland Cement Co.

CEMENT, PORTLAND.
Atlas Portland Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
Clinchfield Portland Cement Corp.
Copley Cement Mfg. Co.
Crescent Portland Cement Co.
Huron-Wyandotte Port. Cement Co.
Kansas City Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Northwestern States Portland Cement Co.
Ohio & Western Lime Co.
Phoenix Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Works.
Union Sand & Material Co.
Whitehall Portland Cement Mfg. Co.
Wolverine Portland Cement Co.

CHAINS.
Chain Belt Co.
Jeffrey Mfg. Co.
Link Belt Co.

CLAYWORKING MCHY.
American Clay Mchy. Co.
Bartlett, C. O., & Snow Co.

COAL CHUTES.
Interstate Mfg. Co

COLORINGS DRY AND MORTAR.
Samuel Cabot.
Calvert Mortar Color Wks.
Chattanooga Paint Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

COMPRESSORS.
Allis-Chalmers Mfg. Co.
Clayton Air Compressor Co.

CONCRETE MIXERS.
Chain Belt Co.
Jaeger Mach. Co.
Lakewood Engineering Co.
Miscampbell, H.
Power & Mining Mach. Co.

CONCRETE REINFORCEMENT.
American Steel & Wire Co.

CONSULTING GEOLOGISTS.
Hunt, Robt. W., & Co.

CORNER BEADS.
North Western Expanded Metal Co.
Sykes Metal Lath & Roofing Co.

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Cleveland Ry. Supply Co.
Link Belt Co.
McMyler-Interstate Co.

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Atlas Car & Mfg. Co.
Austin Mfg. Co.
Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Chain Belt Co.
Dull, Raymond W., & Co.
Ehrsam, J. B., & Sons Mfg. Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Manufacturing Co.
Link Belt Co.
McMyler-Interstate Co.
McLanahan Stone Machine Co.
Manierre Eng. & Mach. Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Toepfer, W., & Sons.
Webster Mfg. Company.
Weller Mfg. Co.

CRUSHERS AND PULVERIZERS.
Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Austin Mfg. Co.
Bacon, Earl C.
Bartlett, C. O., & Snow Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Butterworth & Lowe.
Chalmers & Williams.
Ehrsam, J. B., & Sons Mfg. Co.
Jeffrey Manufacturing Co.
K.-B. Pulverizer Co.
Kent Mill Co.
Lehigh Car, Wheel & Axle Co.
Lewistown Foundry & Machine Co.
McLanahan Stone Machine Co.
Pennsylvania Crusher Co.
Power & Mining Mach. Co.
Raymond Impact Pulverizer Co.
Sturtevant Mill Co.
Traylor Eng. & Mfg. Co.
Webb City & Carterville F. & M. Wks.
Williams Pat. Crusher & Pulverizer Co.

DRAIN TILE.
American Clay Co.
Vigo-American Clay Co.

DREDGES
Osgood Co., The.

DRILLS.
Loomis Machine Co.

DRYERS.
American Process Co.
Bartlett, C. O., & Snow Co.
Link Belt Co.
Ruggles-Coles Eng. Co.

ENGINEERS.
American Process Co.
Bacon, Earl C.
Dull, Raymond W., & Co.
Fuller Engineering Co.
Hunt, Robt. W., & Co.
Improved Equipment Co.
Meade, R. K.
Sauerman Bros.
Schaffer Eng. & Equip. Co.
Smidth & Co., F. L.
Stephens-Adamson Mfg. Co.
Traylor Eng. & Mfg. Co.
Yates, P. K.

ENGINES.
Allis-Chalmers Mfg. Co.
Power & Mining Mach. Co.

EXCAVATORS.
Raymond W. Dull Co.
Haiss Mfg. Co., Inc., Geo.
Indianapolis Cable Excavator Co.
Link Belt Co.
McMyler-Interstate Co.
Osgood Co., The.
Sauerman Bros.
Weller Mfg. Co.

FIRE BRICK.
Carolina Portland Cement Co.
Improved Equipment Co.
Thornton Fire Brick Co.

FLOOR HARDENER.
Ceresit Waterproofing Co.

FURNACES FOR SPECIAL PURPOSES.
Improved Equipment Co.

GAS PRODUCERS.
Improved Equipment Co.

GATES.
Haiss Mfg. Co., Inc., Geo.

GEARS.
Caldwell, H. W., & Son Co.
Chain Belt Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

GLASS SAND MACHINERY.
Lewiston Fdy. & Mach. Co.

GYPSUM BLOCK.
American Cement Plaster Co.
U. S. Gypsum Co.
Plymouth Gypsum Co.

GYPSUM—PLASTER.
Best Bros. Keene's Cement Co.
Cardiff Gypsum Co.
Carolina Portland Cement Co.
National Mortar & Supply Co.
Ohio & Western Lime Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.
Wheeling Wall Plaster Co.

HAIR.
Ohio & Western Lime Co.

HOISTS, ELECTRIC AND STEAM.
Allis-Chalmers Mfg. Co.
Link Belt Co.
Haiss Mfg. Co., Inc., Geo.

HOLLOW CLAY TILE.
American Clay Co.
Metropolitan Paving Brick Co.
Vigo-American Clay Co.

HYDRATING MCHY.
Atlas Car & Mfg. Co.
Kritzer Co., The.
Miscampbell, H.

LIME.
Carolina P. C. Co.
Kelley Island Lime & Trans. Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.

LIME, HYDRATED.
Kelley Island Lime & Transport Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Scioto Lime & Stone Co.

LIME KILNS.
Atlas Car & Mfg. Co.
Improved Equipment Co.

LOADERS AND UNLOADERS.
Ambursen Company.
Chain Belt Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Mfg. Co.
Link Belt Co.
Manierre Eng. & Mach. Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

LOCOMOTIVES.
Davenport Locomotive Wks.

MANGANESE STEEL.
Allis-Chalmers Mfg. Co.
Link Belt Co.

METAL LATH.
Bostwick Steel Lath Co.
Carolina Portland Cement Co.
North Western Expanded Metal Co.
Sykes Metal Lath & Roofing Co.
Trussed Concrete Steel Co.

MOTOR TRUCKS.
Kissel Motor Car Co.
Pierce-Arrow Motor Car Co.

PAINT AND COATINGS.
Cabot, Samuel.
Calvert Mortar Color Wks.
Ceresit Waterproofing Co.
Chattanooga Paint Co.
Gordon-Hittl Co.
Ricketson Mineral Paint Co.
Williams, C. K., & Co.

PERFORATED METALS.
Allis-Chalmers Mfg. Co.
Johnson & Chapman.
Hendrick Mfg. Co.
Toepfer, W., & Son.

PLASTER.
See Gypsum.

PLASTER BOARD.
American Cement Plaster Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.

PLASTER BOND.
Ceresit Waterproofing Co.

PLASTER MCHY.
Butterworth & Lowe.
Dunning, W. D.
Ehrsam, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

PREPARED ROOFING—SHINGLES
Carolina Portland Cement Co.
Reynolds Asphalt Shingle Co.

PUMPS.
Allis-Chalmers Mfg. Co.
International Steam Pump Co.

QUARRY CARS.
See Cars.

ROAD MACHINERY.
Austin Mfg. Co.
Osgood Co., The.
Troy Wagon Works.

ROOFING-METAL.
Sykes Metal Lath & Roofing Co.

SAND.
Union Sand & Material Co.

SAND AND GRAVEL WASHING PLANTS.
Dull & Co., Raymond W.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Co.
Weller Mfg. Co.

SAND LIME BRICK MACHINERY.
Amer. Clay Machy. Co.

SCALE CARS.
Atlas Car & Mfg. Co.

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Allis-Chalmers Mfg. Co.
American Pulverizer Co.
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Chain Belt Co.
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Ehrsam, J. B., & Sons Mfg. Co.
Haiss Mfg. Co., Inc., Geo.
Hendricks Mfg. Co.
Johnston & Chapman Co.
Link Belt Co.
McLanahan Stone Machine Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Sturtevant Mill Co.
Toepfer, W., & Sons.
Webster Mfg. Company.
Weller Mfg. Co.

SECOND-HAND MACHINERY.
Bourse.

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Osgood Co., The.
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STUCCO RETARDER.
National Retarder Co.

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Troy Wagon Wks. Co., The.

TRAMWAYS.
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TUBE MILLS.
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Smidth & Co., F. L.

WAGONS—DUMP AND REVERSIBLE.
Troy Wagon Wks. Co., The.

WALL PLUGS AND TIES.
Sykes Metal Lath & Roofing Co.

WATERPROOFING.
Cabot, Samuel, Inc.
Carolina Portland Cement Co.
Ceresit Waterproofing Co.
General Fireproofing Co., The.
Sandusky Portland Cement Co.

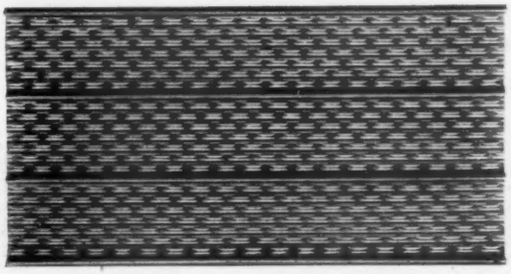
WEIGHING MACHINES.
Schaffer Eng. & Equip. Co.
Sturtevant Mill Co.

WIRE AND WIRE FENCING.
American Steel & Wire Co.

WIRE ROPE.
American Steel & Wire Co.
Leschen, A., & Sons Co.

The "Bostwick" Line of Building Metal Goods

IS INCLUSIVE—FROM THE WALLS TO THE TRIM



"Truss-V-Rib"— "Bostwick Truss-V-Rib," the ideal re-enforcement for light concrete work without forms or stiffening channels. 12% heavier than competitive materials, has the "truss" construction, found only in Bostwick products, for weight carrying capacity and low cost of finished plaster or concrete surface.

The difference in the strength of "Truss-V-Rib" as compared with expanded metal intersected by ribs which can be no stronger than the weakest strand of the adjoining metal, has only to be seen to be appreciated.

Get a Line on "Bostwick Dealers Service"

The Bostwick Steel Lath Co., Niles, O.

BRICK—The Old Way of Handling Them is a Nuisance

In tossing brick out of a car many are broken. A wheelbarrow doesn't carry enough bricks to warrant the time it takes to load, wheel it out and dump it.

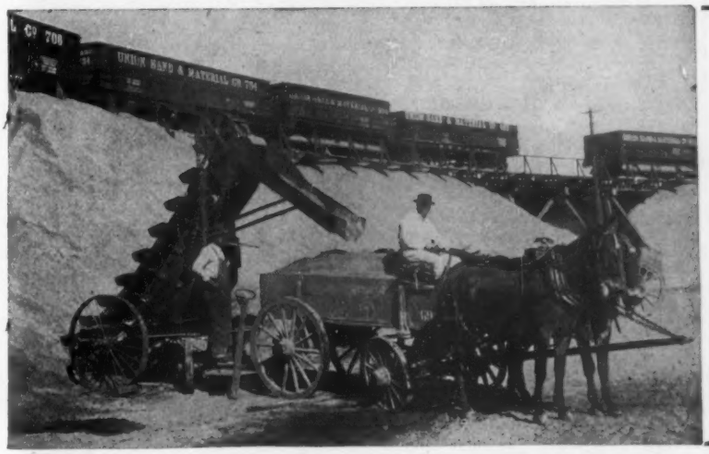
Use a CLEVELAND BRICK CLAMP

It is the Newest and Quickest Way

Furthermore, in unloading brick it actually saves ONE-THIRD of the time over the old methods. This clamp is adjustable and will carry from FOUR to TWELVE bricks. There's no fuss or bother. Simply place the clamp down on the bricks and lift the handle.

The price? It is so inexpensive ANYONE can afford it. Just send your name on a postal and we'll send a neat catalog and price list.

THE P. D. CRANE COMPANY, 10201 Harvard Avenue, Cleveland, Ohio



If you don't believe money is made loading trucks by **Haiss Wagon Loaders,** just ask the man that has one.

Haiss Wagon Loaders

(Patented)

dig trap rock, sand, gravel, coal, coke, etc., from ground storage and load into trucks for less than 1 cent a cu. yd. for electric or gasoline power, and at a speed of 1 cu. yd. per minute. This machine is different—it digs. Write for cost data and learn what contractors and material men have saved with a Haiss Wagon Loader.

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TESTS OF PAVING BRICK 2200 Insurance Exchange, Chicago SEND FOR OUR BOOKLET "B"

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The Order Went to "Tiger Brand"

—because there were thousands of yards of white coat plastering which had to be protected against pitting, popping and blistering and other plaster troubles.

East Side High School, Toledo, Ohio

Tiger Brand White Rock Finish

Hydrated Lime

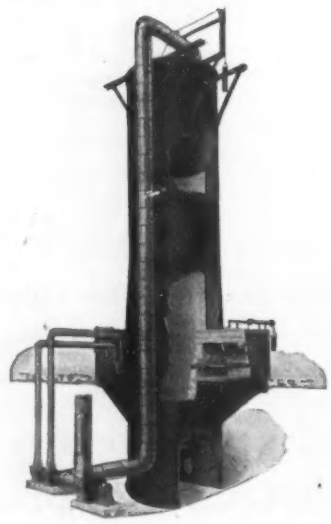
gets the call on many big jobs like this where nothing else will do.

At the same time it is suited both in quality and price for every purpose where any lime is used.

Nothing to lose and everything to gain by handling Tiger Brand.

KELLEY ISLAND LIME AND TRANSPORT CO.
Cleveland, Ohio

Doherty-Eldred Lime Kiln



The Improved Equipment Co.

COMBUSTION ENGINEERS

60 Wall St., New York City

Complete Coal Gas Plants
Complete Lime Burning Plants
Gas Producers
Lime Kilns
Special Industrial Furnaces
Refractory Materials

To-day and—

The constant trend of business is toward stability. The merchant of today knows that profitable trade includes the future as well as the present.

For this reason it is to his best interests to choose to handle only those materials which will help him create permanent business for himself.

Quality of product is necessary.

Prompt service in delivery is also essential.

Co-operation in advertising and selling will help greatly.

When these three are combined, the product can be called almost ideal.

LEHIGH CEMENT

MILLS:

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OFFICES:

Allentown, Chicago, Spokane, New York City, Philadelphia, Boston, Minneapolis, Savannah, Des Moines, New Castle, Buffalo

12 Mills—Annual Capacity Over 12,000,000 Barrels

OCT 13 1915

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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XVI. **CHICAGO, OCTOBER 7, 1915.** **Number 11**

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The hauling problem in road construction is finding solution by the route of motor trucks, tractors and trailers. Another article on this most interesting subject is due to appear in our issue of Oct. 22.

The tendency of railroad improvements is toward permanent concrete structures for bridges, viaducts and similar structures. With the best engineering advice, and careful men and with the most expert data from the widest experience in the use of concrete, the railroads have found that their investments in concrete pay better than any other.

Activities of the National Builders' Supply Association show that organization to be more active in its field work and more efficient than it has ever been in the past. Doubtless the coming convention at Cleveland will demonstrate that there are thousands of enterprising and progressive dealers who have awakened to the value of coöperation and a liberal policy within their own fraternity.

The propitious period for the promotion of good road improvements is with us in these days of unprecedented prosperity in the agricultural districts. The typical farmer has already purchased his automobile. He is now open to suggestions with regards to good roads. The crop of road appropriations that can be developed in the township jurisdictions during the fall and winter will make big prosperity for the road contractors next year.

The cheapness of fireproof building materials when compared with the value of the finished structure is the best argument for their wider use in the future typical building specifications. This argumentative asset has never been employed with anything like the insistence that it deserves. There has been entirely too much timidity on the part of the people who have the best goods to sell in not recommending them as broadly as they are well justified in doing.

The only depressing feature of the rock crushing industry is the lack of price. There is plenty of business and it is growing faster than that of any other staple commodity. Only the ingenuity of the people in the business and the wonderful development devices for handling the great tonnage economically has made it possible to maintain the low prices at which quotations have been made in the past. The certain expansion of the demand right ahead of us suggests the propriety of a substantial advance all along the line for crusher products.

When we contemplate the enormous fire losses of our total population at $30 per capita per annum the importance of the consideration and application of fireproof construction for each and every type and kind of building must be appreciated. There is a tendency on the part of technical men generally to make the requirements and restrictions of fireproof construction entirely too difficult to comply with. After all is said upon the subject the control of an incipient fire is more important than any other. It is probable that there never will be any material found that will be practical for average construction purposes that can technically withstand the ravages of a great conflagration. You must remember that great conflagrations are impossible if we can eliminate the little fire that starts the trouble. While most of the building codes of the great cities have elaborate technical data and guidance with respect to the construction of very large and important buildings, there is very little suggestion, advice or recomendation with regard to lesser buildings such as residences, small business buildings and the like. After all, these are of the greatest significance because of their tremendous number. They are nearly always at the root of a starting conflagration and the near fireproofing or the mere use of incombustible material would bring about a wonderful improvement in the safety of construction. It would soon have a very important bearing upon our annual fire loss, which must be confessed as the greatest blot upon our present building industry.

There has been a remarkable improvement in the building appropriations during the past few months. The compilation of nation-wide statistics shows that there was an advance of 13.7 per cent for the month of August with the certainty that when the returns are all considered for the month of September that a greater per cent of increase is sure to be shown. There is tremendous prosperity in the agricultural districts coming from the heaviest crops that were ever produced from the soil. These are being sold in the world's markets at a higher average figure than short crops of the past have ever been known to bring. Manufacturing interests of every kind are much encouraged. Employment is good and getting better every day. Every sign is propitious for a greater building season in 1916 than we have yet experienced. Right ahead of us there is tremendous industrial activity that is going to strain the resources of the country in materials and in labor to supply the demands. The vivid lessons taught by the great war in Europe calls for heavy preparation investment on the part of the government. The railroads begin to realize that they have got to drop heavy expenditures in fancy appropriations for terminals and improve their actual service facilities up to a permanent basis if they are to fulfill their missions efficiently and profitably. While things have been somewhat uncertain and slow for some time there is every reason to believe that we are now upon the brink of a wonderful period of development that means prosperity to every one who is engaged in the production and sale of staple commodities.

WITH YOU and ME

E. J. Moore, sales manager for the state of Texas, representing the Oklahoma Portland Cement Co., has opened his sales headquarters at 131 Busch building, Dallas, Tex.

E. Fernholtz, president of the National Briquetting and Clay Working Machinery Co., of Los Angeles, Cal., was in San Francisco a few days ago visiting the Panama-Pacific Exposition.

The Memphis, Tenn., Builders' Exchange is getting down to autumn meetings actively and the members are alive. On construction matters they are constantly at the front.

Blaine S. Smith, general sales manager of the Universal Portland Cement Co., is among the speakers slated for the civic industrial meetings of the Chicago Association of Commerce, which will be held weekly during the fall and winter.

Gordon S. Bowdish, representing the National Paving Co., of Kansas City and Pittsburgh, has been in California for several weeks and it is understood that he is looking for a possible location for a paving plant.

A well known supply man of Winnipeg in the person of S. S. Smith has received a commission in one of the Winnipeg regiments. Mr. Smith was for many years manager of the Lake Winnipeg Shipping Co., Winnipeg.

Arthur L. Gates, who travels Northern Illinois for the Lehigh Portland Cement Co., has been laid up for a period of two weeks with an attack of appendicitis. During this illness, the trade was well taken care of by W. H. Eckels, who supervises the work in Illinois.

The branch of the Los Angeles Pressed Brick Co., located at Richmond, Cal., has been separated from the Los Angeles end of the business and will hereafter be operated under the name of the Richmond Pressed Brick Co. It will continue under the same management as heretofore.

The Porterville Magnesite Co., which was recently incorporated to take over and develop large deposits of magnesite in Tulare county, near Porterville, has opened offices in the Monadnock building, San Francisco, Cal. The directors of the company are: C. S. Woody, H. M. Hardy, E. O. Magee, H. C. Allen and G. A. Collum.

W. E. Hardy, for the past 11 years connected with the Diamond Rubber Co. and the B. F. Goodrich Co., and lately in charge of the sales of their mechanical rubber goods division, has been appointed sales manager of the Boston Belting Co., Boston, Mass., manufacturers of mechanical rubber goods.

At last week's meeting of the Pittsburgh Real Estate Board Architect Sidley F. Heckert, chairman of the Building Code Commission of this city, addressed the board on the subject of the "New Building Code." This code, by the way, is likely to make an important change in Pittsburgh building operations, as it will make a big difference in the kind of materials used and also in the regulation regarding general building operations.

F. C. Davis, representing Gladding, McBean & Co., brick and terra cotta manufacturers of San Francisco, and W. W. Dennis, manager of the McNear Brick Agency of San Francisco, made a trip up the California coast last week as far as Eureka as members of the San Francisco Chamber of Commerce Trade Extension Committee.

Millard F. Gibson, formerly superintendent of the Canadian plant of the National Fireproofing Co. at Aldershott, Ont., has been appointed general manager of the Canadian company and will reside at Toronto, where the head office is located. Mr. Gibson is manager of the rugby team of the Hamilton Rowing club and vice-president of the Hamilton baseball team in the Canadian league.

Joseph Keele, who has been in charge of the clay testing laboratory at Toronto University, has removed to Ottawa to take charge of the large new laboratory recently built and equipped by the Canadian government under the department of mines for enlarging the work being done by Mr. Keele. The brick manufacturers and builders supply men of Toronto presented him with a traveling umbrella before his departure for Ottawa.

L. Fisher and T. M. Simpson have leased two upper floors in the Newman-Magnin building, San Francisco, in which they will arrange for a building materials exhibit. The plan is to have exhibits installed of interest to architects, contractors and builders. Arrangements have been made to have a number of exhibits now at the Fair moved intact to the new exhibit as soon the the Fair closes.

E. H. Michel, manager of the sales department of the New Orleans office of the Salem Brick & Lumber Co., has spent three weeks on the Pacific coast, taking in the expositions at San Francisco and San Diego. Reports from him indicate that he had an excellent time and that he finds general business conditions on the coast about the same as usual. Mr. Michel also reports that his health, which has been bad for some time, has wonderfully improved as a result of his vacational trip.

Cedric Fosdick, manager and paymaster for the M. Dugan Concrete Co., Cincinnati, Ohio, was badly beaten when attacked by a negro highwayman recently while on his way to one of the company's jobs to pay off the men, and was robbed of $75. The man evidently knew of Mr. Fosdick's errand, and laid in wait for him. The robber escaped with the money, and, so far, has not been caught. Mr. Fosdick's injuries were painful, but are not expected to prove serious.

Scheduled Meetings.

Oct. 11-15—National Paving Brick Manufacturers' Association, annual convention, Dayton, Ohio.

Feb. 12-19, 1916—Ninth Chicago Cement Show, Coliseum and Armory, Chicago, Ill. Cement Products Exhibition Co., Robert F. Hall, 208 South La Salle street, Chicago, secretary.

Feb. 15-16, 1916—Ohio Builders' Supply Association, annual convention, Cleveland, Ohio.

Feb. 15-18, 1916—Second National Conference on Concrete Road Building, Auditorium hotel, Chicago, Ill. J. P. Beck, 208 South La Salle street, Chicago, secretary.

Feb. 16-26, 1916—Complete Building Show, Coliseum, Cleveland, Ohio.

Feb. 17-19, 1916—National Builders' Supply Association, annual convention, Statler Hotel, Cleveland, Ohio.

Walter A. Fuchs, advertising manager of the Lehigh Portland Cement Co., was married on Sept. 4 to Miss Dorothea Dalzell Gleason, daughter of Mr. and Mrs. Ira Torrey Gleason. The wedding ceremony was performed at the home of the bride's parents at Buffalo. Mr. and Mrs. Fuchs, while on their wedding tour, visited Atlantic City at the time of the recent cement manufacturers' meeting. They will be at home after Nov. 1, at 35 South Eighteenth street, Allentown, Pa.

On the desk of Mr. Bethune, head of the brick department of Fritz Jahncke, Inc., New Orleans, there is a set of reference books, neatly bound in red leather, which have proved very helpful to Mr. Bethune in figuring on contracts, etc. These books subdivide the various materials handled by Fritz Jahncke, Inc., and are so arranged that every scrap of information about a certain material is contained in each book. They are labeled: Fireproofing, plaster, fire brick, paints, pressed bricks, clay products, waterproofing, metal lath, cement, etc.

The Pittsburgh Builders' Exchange, under the active direction of Secretary E. M. Tate, is likely to have a very live and successful fall season. It resumed its weekly luncheons at its headquarters in the Fulton building Thursday, Sept. 30. The first speaker was Frederick E. Crotois, assistant manager of the Metropolitan Mutual Liability Insurance Co., of New York City. He discussed liability insurance and workmen's compensation in which building contractors and supply men are greatly interested because the workmen's compensation law of Pennsylvania takes effect Jan. 1, 1916. On Oct. 7 City Councilman Robert Garland, was scheduled to address the Builders' Exchange. The Exchange recently held a very successful corn roast at the country home of W. P. Craig at Ingomar.

One of the progressive builders' supply men of the Far West is located in Portland, Ore., in the person of F. W. Farrington, of F. W. Farrington, & Co., 303 Henry building. Mr. Farrington took up the building material business in 1898, entering the employ of the Adamant Manufacturing Co., of Minneapolis. Later this was taken over by the U. S. Gypsum Co., and he advanced under the new regime until he became Western sales manager. Then came the "call of the West" and Mr. Farrington resigned to accept the position of general manager for F. T. Crowe & Co., in 1911. In the latter part of 1914 he withdrew and engaged in business for himself as F. W. Farrington & Co., acting as coast representative for several large Eastern manufacturing concerns; also local representatives for a number of other lines. Today, Farrington & Co. occupy a distinctively strong position in the Pacific coast market for building specialties. Mr. Farrington personally is known to all the trade from Mexico north and his "lines" embrace many nationally advertised products which are standard with the building fraternity.

The RETAILER

The End of Barbaric Competition

Everybody is reading the telegraphic reports that come from the war in Europe. It is entirely made up of the movement of troops, with a great many words about the caliber of guns, the dimensions of projectiles and the pomp, the clatter and the human distress occasioned by war. This on the surface constitutes the whole matter and is designed to provoke and to play upon partisan sentiment. But the real big thing is nothing of that kind whatever. The concentration of human thought is all unseen but back of the armies are the motive and impulse that drive them on, that hold them in the trenches, that feed the resolution to keep the horrible work in progress. The battle of intellect amounts to a great deal more than the movement of armies or their success or failure, for regardless of which side may be the military victor there is growing and has already grown up a new idea of centralized opinion that is to be the basis of a broader civilization which is to dominate the world in the immediate future. Such is the benefit to humanity purchased with the price of so much slaughter amongst the European nations.

Only under this terrific strain and test of fire has the central idea of modern German thought become clearly defined so that it could be understood by other peoples. The alacrity with which it is being adopted by all of the other belligerents points clearly our own future and that of every other civilized people throughout the globe. The wonderful idea of the development of the individual, the co-operation of individuals and the comradeship of intensified industry and commerce, without internal competition, is not a German thought nor is it new. It is Greek in principle and in fact, adopted by a great reader and scholar of ancient history, and adapted to the conditions of modern Germany by the greatest genius of statecraft in the nineteenth century. It was adopted for the purpose of removing the cause of wholesale emigration, to create and develop a condition that would attract and hold the ambitious, energetic, strong and adventurous elements of German population, and so keep the best at home to build up their own country.

The dominating idea in this decision was the Greek principle that life alone is wealth, and that health, contentment and activity constitute the chief ingredients of national safety and successful private enterprise.

The competition of life, of industry and commerce, have been the remaining dregs of feudalism, which was the first step out of the darkness of barbaric disorder. It introduced the conditions of armed competition resulting in the grading or stratification of society, so that the strong, mighty and powerful by the only right of might ruled, prostituted and exploited the weak, the helpless and the hopeless.

A glance at our own industries and our commerce in all branches discloses a well defined class distinction or stratification of society quite parallel to that established by the feudal system. Such a thing is inevitable where the generally recognized highest achievement is, briefly, money-getting. The enjoyment of unearned incomes by those who have never given service to mankind in any way commensurate with the capital from which such incomes are derived is a primary cause of discontent that can never be satisfied. It is the same discontent, but expressed another way, that brought on the French revolution. An equal revolution of opinion and a more far-reaching readjustment of the plans and purposes of industry and commerce are at hand, and very rapidly coming to realization.

We have, without any definite understanding, carelessly condemned what we term "German militarism" because we could see only the surface and had no reason to investigate its real meaning because we thought we knew. That thing which the jokers have called "kultur" has already revolutionized the ideals of civilization so that its world-wide influence is swallowing up the misery and inefficiency that have percolated through the sands of time to this twentieth century.

Barbaric competition has gone forever. It makes no difference whether numerous statutory mistakes are promptly repealed or not. Competition of the wealth of life itself has long been wiped away, but competition of industry and commerce has survived until the present time, using the feudal weapons of necessity, hunger and the mating instinct to grind the powerless into subjection, and then using the dread and fear of want as the lash to unwilling activity of every kind.

Such competition has changed into rivalry, which has entirely a different kind of motive and appeals to a higher order of sensibility. It is uplifting instead of depressing.

Co-operation, instead of jealousy, mistrust and deception, is the great universal principle that has been taught and disseminated in the organization, compacting and developing of great armies.

Safety, contentment and activity constitute happiness. Not all or any one of the three can be bought with gold, nor are they or either of them intimately connected with gold in any way. It is true that one-sided individuals, despising safety, unappreciative of contentment, but concentrating upon activity, have achieved fortunes. Probably all individuals, dwarfed in this way, could do the same thing, but it is not given to them to accomplish the main attainment of happiness.

Our industrial unrest is mainly centered on the dollar because that has been the accepted measure of success. Merchandising needs protection because unearned profits must be levied against the consumers. The price of service and accommodation to the consumer has been little thought of by the merchant of the past. He has not understood or even seen the expansion of business which must immediately follow the inauguration of the new principle of co-operation. The brotherly sentiment of military comradeship, which promptly recognizes the value and the justice of the claims of others to the equal enjoyment of all material benefits will guarantee the safety and contentment of all.

The change is here. It has come. It will grow more rapidly than eagles fly. Its prompt recognition and acceptance is the mark of wisdom, for it is cheaper, easier and better to do it peacefully than to have it forced upon us at the point of a bayonet, whether our own or somebody else's. Many of the nations have recently realized this and now are precipitately jumping into the tide.

In the saner, clearer view of militarism as projected upon the world by old Bismarck, now long dead, we cannot help but see the leveling aristocratic-democracy, if you please, of an army in which the whole nation is a part. The "first-liners" are those at present under arms, constituting the present nobility. These are ever changing, like life itself. The messmates of the company formations soon go into industry, still messmates and comrades because now a part of the second line, first retired, and, comrades still in later life, until they reach the last reserves. Always a part of the aristocracy of the army, cheerful to give the same deference to the first-liners that they themselves demanded in their term of service and active duty. So only impartial time marks the grades of society unto the common end.

The specific form and type of the new organization of society has spontaneously presented itself in this country by large bodies of business men, attached to important interests, studying the comradeship of the military organization, in voluntary camps that are growing immensely popular and numerous.

The same movement in the belligerent countries recognizing the change of the basic opinion of civilization amounts to an obsession. Not to be military or trying to be military is considered to be a disgrace. So it is going to be around the world.

A new kind of comradeship which completely eliminates the bitterness of competition is the asset that has been gained and is to be promulgated as the ripe fruit of civilized progress snatched from the anvil of battle.

The statesman, even the politician, the manufacturer and the merchant, the employer and the artisan—all denominations of individuals—have got to learn a full set of new rules with which to wage the battle of life. The new deal has come. It will meet with the friction of opposition or be cordially received and fostered. The first course will bring on temporary distress, even panic or chaos, the latter would amount to the overture of the stupendous harmony of the ages.

Milwaukee Concern to Reorganize.

Milwaukee, Wis., Oct. 4.—The stockholders of the Pennsylvania Coal & Supply Co., of Milwaukee, well-known building material supply concern, at a meeting held on Sept. 20, decided to completely reorganize the company at some future date and increase the capital stock from $890,000 to $1,500,000. Plans were also made at the meeting for the building of new docks. This project will represent an investment of $150,000.

It is understood that F. S. Peabody, of Chicago, who has been at the head of the Pennsylvania concern since last April, will be elected president of the reorganized company. J. B. Whitnall, former president and one of the heaviest stockholders of the concern, says that $300,000 in additional cash will be put into the new company in order to increase the working capital. This, together with the additional stock issue, will mean approximately $1,100,000 in additional working capital for the reorganized concern. Holders of preferred and common stock in the old company will take common stock in the new company and Mr. Whitnall and Vice-President W. E. Caldwell will give to holders of preferred in the old company sufficient stock in the new company to bring their holdings up to par.

"We were greatly handicapped by lack of working capital," said Mr. Whitnall, "and the new company with the additional capital will mean greatly increased business for the concern."

Advertising as Applied to the Dealer

BY WALTER A. FUCHS,
Advertising Manager Lehigh Portland Cement Co.

[The following address on the question of advertising is treated from the dealer's point of view. It was delivered by Mr. Fuchs before the members of the New Jersey Mason Material Dealers' Association at their recent convention in New York City.—Editors.]

At the outset, I want to assert that whatever remarks I make will be from the point of view of the building material dealer in so far as I have been able to get this aspect from a study of the building material business.

I will only give you a few observations I have made which may possibly be of some service in the consideration of your advertising work.

The object of advertising is to increase or hold business and such advertising and publicity that does not accomplish this end, is more or less wasted effort.

The building material dealer has somewhat of a difficult problem before him in considering the ways and means through which he shall present his commodities to consumers.

The dealer in commodities like the grocer, hardware merchant, or dry goods man, who sells commodities having wide general uses, is not confronted with so many difficulties in presenting his line to the public.

The ordinary dealer's problem most frequently resolves itself into staplizing the specialties which he sells, while the problem of the building material dealer is to specialize staples.

In general lines, such as flour, sugar, clothing, baked goods, etc., we have many instances where staples have been specialized. A few examples are "Gold Medal Flour," "Crystal Domino Sugar," "Hart Schaffner & Marks" clothing, "Uneeda Biscuit," "Wooltex" dress goods, and undoubtedly many others come to your mind. These examples might also be noted as staples which have been specialized and which specialties the general dealer is now engaged in staplizing.

We all recognize these names and to each of us they stand for superiority. As these staples have been nationally specialized, so must you, locally, specialize the staple building material which you handle. Of course, in order to do this, you must be particularly careful as to the classes of merchandise you handle.

Before any building material dealer engages in any advertising campaign, he must analyze his business with a view to determining if he is really in position to carry on a successful campaign. In other words, he must ask himself the question, to use a slang expression, "Can I deliver the goods?" If it is necessary for him to answer this question in the negative, before doing any advertising, he should adjust his business so that he can answer that question in the affirmative.

There are certain fundamentals necessary before a dealer is justified in advertising. First of all, he must be sure that the products he handles are the best procurable and that they are manufactured by companies of integrity—companies which will back up any representations made by the dealer. It is possible in the building material business to select products manufactured by companies whose reputation for integrity is generally known, and whose prestige would be an asset to the dealer in his affiliation.

The building material dealer must place his business on a high plane. He must know his cost of doing business and how much he can afford to spend in the promotion of his sales. His office routine, systems, as well as yards, must be on an efficiency basis and his customers should be impressed with the apparent smoothness with which his business is conducted.

The appearance of his office and yards is also an essential consideration. A neat office, a well laid out yard and good looking buildings, indicate to the public a well ordered mind and, consequently, a well ordered business.

In dealing with patrons, courtesy and an individuality in treatment of customers should be observed; that is, each whim and eccentricity should be catered to.

It should be just as pleasant for a man to do business with a building material dealer as it is for him to do business with a bank, law office or haberdashery. A personal interview or telephone conversation should always leave the customer in a pleasant frame of mind with the feeling that the dealer is a fine man to do business with.

Until the building material dealer has put his business on this high plane, it is almost useless for him to advertise because he will not be able to back up his advertising.

The negative forces of unbusinesslike and apathetic treatment of customers will work against the positive forces of advertising.

Having once put his business on a high plane as suggested, the dealer will have started an advertising campaign—though no printed message has been presented to his prospects.

A high standard of doing business will influence public opinion to a great extent. It will mean that the dealer gets a great deal of word of mouth advertising which in itself is exceedingly valuable in creating good will.

Advertising does not necessarily show its effect in direct results, but indirectly through prestige and good will which it creates.

Someone has said there was once a man who said he could not trace results from his advertising. Neither could he trace the working of his liver, nor the circulation of his blood; still he knew he was living and kept on eating to remain alive. I think there is a great deal of philosophy in that quotation and I think that every dealer could profitably apply it to his business.

The general public today is interested in the materials which enter into the construction of their homes and heads of industrial establishments are familiar with the various building commodities they purchase. This attitude has been largely brought about by the public press, not only magazines, but newspapers. More and more people are interested in specifying the particular brand of roofing, lime, cement, plaster, etc., which they are to use. This is very largely true because manufacturers of high grade building materials advertise extensively in a national way and have created for their products a prestige and have gained the good will of the general public.

Of course, the manufacturer doing business all over the country is able, as the dealer is not, to place his commodity before the public, primarily because he only has one product as a rule to exploit, while the dealer has many. It remains, however, for the dealer to cash in to the greatest extent possible on the advertising efforts of the manufacturer and he can do this by letting the individuals in his community know the class of goods he carries in stock, making mention of the various brands. By so doing, in a measure the dealer can obtain for himself the same prestige which the manufacturer has secured for his goods.

As a rule, the consumer recognizes the fact that the manufacturer of a high-class commodity would not place it for sale through a disreputable dealer as the commodity is the best which can be purchased and should be marketed through the dealer who only associates himself with quality goods. For instance, if a dealer handles a brand of roofing which through extensive advertising has been made familiar to the public, the consumer naturally feels that the dealer carries quality goods in every line and by making this fact known the dealer cannot but help cash in.

There is one feature of his business which the dealer cannot give too much attention to and which he must advertise extensively in his community, and that is the service he renders. He should make a special point of prompt deliveries and the fact that no order is too small. Small orders very frequently lead to big business and excellent service where the small order is concerned undeniably stamps upon the mind of the purchaser the fact that the dealer will render that kind of service on any order.

If somebody telephones for a small quantity of any commodity to be delivered to some out of the way place, it is naturally expensive for the dealer to handle the order, but the expense of the service rendered is an investment in advertising and good will which will undeniably be cashed in on eventually. For not only does it most frequently result in big business but it also brings about a good deal of word of mouth advertising.

The actual advertising which the dealer does through the various mediums which present themselves are most frequently a subject for special consideration in individual cases. Where in one town, newspaper advertising might be effective, in another town it might be ineffective, depending upon the class and circulation of the publication, and so when advertising, the dealer should carefully analyze the conditions in his community and select his methods with extreme care.

There is one rule, however, which applies to every building material dealer and that is that every advertisement, whether it be in the public press, a circular letter, a folder or what not, shall have about it an air of distinction and class. Extreme care should be taken in the preparation of any advertising. The type should be uniform and, if an illustration is used, it should be as good an illustration as can be secured. If it is a circular, the circular should be printed on good paper and the finished result should be pleasing to the eye.

As all of you know, there have been laid down several fundamentals for every advertisement. First of all, an advertisement should be designed to attract attention. Second, to hold that attention and create interest. Third, to point the way and cause response.

It might be said that the purpose of an advertisement is to put the prospective buyer into a favorable mental attitude toward the adviser. Every advertisement should be specific, it should be pertinent and it should be consistent in not exaggerating or in lacking dignity or in savoring of the sensational. All advertising should ring with a note of sincerity and if the advertiser will bear some of these points in mind, his advertising will be more effective.

In a recent advertising publication, the following appeared:

> "No," says Jas. H. Collins, "advertising isn't writing a world beating announcement the first time, and waiting until everything is perfect before beginning. It's making a start somehow, and writing a better ad the second time through experience of shortcomings in the first, and doing better the second year, and hitting a good pace, and getting second wind, and going on, and on, and on."

The principal points which the retail building material dealer has to make the subject matter of his advertisement are quality and service, and these two things should really be the keynote of his business and he should tell the public about his quality and service in just as interesting a way as possible.

A distinctive letterhead, printed on good paper, is a good advertisement. If the building material dealer can devise some slogan indicative of his business, it should be included on all of his printed matter. Or if he has a trade mark or an individual way of lettering for his firm name, it will be effective in impressing the public with his business. Once having adopted these individualities, the dealer should be persistent in impressing them upon his prospects.

Possibly the best method of advertising for any retail dealer is direct mail advertising. It is most certainly the most reasonable method and those who have been able to trace results find the most effective.

By means of direct mail advertising, it is possible for the retail dealer to specialize. He can, for instance, select his list of architects, contractors, masons, carpenters, those who contemplate building, farmers, etc., and by means of a circular letter present the particular commodity or arguments which will be most interesting to the various classes.

Here again care must be observed in the use of good paper, and of good printing. In other words, his circular matter should be sufficiently attractive that it does not find its place in the waste basket. At certain seasons of the year, a circular or a mailing card may be issued. In mailing out statements, correspondence, etc., an envelope enclosure is a good thing. Most of the manufacturers with whom you do business undoubtedly furnish a sufficient variety of mail enclosures which will preclude the necessity of having any of your own printed.

Newspaper advertising has proven very effective in many cases and the dealers have found it advisable to make use of the electrotypes which the various manufacturers furnish them. It is surely a most effective way of tying up with the general efforts of the manufacturer and establishes the dealer as the local source of supply for the various well-known commodities.

Dealers' general advertisements in newspapers should be most carefully prepared. They should be attractive and the fundamentals mentioned should be most carefully observed. If newspaper advertising is engaged in, it should be persistent at the seasons of the year when building materials are most in demand.

One other thought: The various manufacturers with whom you do business very frequently refer inquiries to you. Your experience has undoubtedly been that a large number of these inquiries are not worth while and it is only one inquiry out of every dozen or so which is productive of any business. Even though this one inquiry is productive of only a small amount of business and the profit on the order is not at all commensurate with the time and effort expended in following it up, you must bear in mind that it has been the means of putting another customer on your books and every customer added to your books is the best kind of a prospect for future business. If you handle this small order to his satisfaction there will undoubtedly be other orders forthcoming and even the following up of the inquiries which are not productive of business is an investment in good will and advertising which may eventually do a lot of good.

It has been impossible in this brief space of time to make any real tangible suggestions and I only hope that I have not bored you with generalities. It is my hope, though, that I have been able to give each of you some thought which may be of service in conjunction with the advertising of your business.

Cincinnati Building "Comes Back."

Cincinnati, Ohio, Oct. 4.—Fine weather during the greater part of September had its effect on local building work, the amount of activity in evidence being much greater than might have been expected, in view of the lateness of the season. While several large jobs were let, most of the work was small, the healthy increase in construction by builders of residences being noted as a very favorable sign. October opened with bad weather, but it is expected that the fall will be a good one, barring unusually severe weather, as a good many jobs are under roof and ready for anything that may come in the way of cold or moisture. Handlers of materials are fairly well satisfied with the season's work, considering the adverse conditions in evidence in the financial world, especially in view of the fact that the fall is going to help some toward making up for the shortage of the early summer months.

The records of the building commissioner's office for the month of September show a good increase in the amount of work authorized, as compared with the corresponding month in previous years, and thus the good record made by other months is kept up. There were 1,303 permits issued for improvements valued at $1,264,444, as compared with 1,200 permits and $665,608 worth of work last year, and 993 permits and $868,576 in work in 1913. For the nine months of 1915 now past the total number of permits issued was 12,302, for work of the estimated value of $11,253,683, which is far ahead of the figures for both 1913 and 1914, and indicates that, after all, the year will make an excellent showing, at least as far as the records are concerned.

Among the big jobs which were let during the latter part of the month were the big addition to the Pogue building and the principal buildings of the new East high school. The latter, rather, was not let, but bids were opened and announced. On the Pogue job the David Hummel Building Co. landed the contract for the brick and terra-cotta work, while the Moores-Coney Co. will furnish the cement, crushed stone and other material. The Ferro-Concrete Construction Co., of Cincinnati, was low bidder on the high school, with a figure of $452,519.

The Shorey-Willis Brick & Supply Co. reports the demand for face brick as being confined principally to small lots, as has been the case for some time. The company's common-brick plant, however, continues to turn out about 25,000 brick a day, and these are disposed of readily, some going as far as Dayton. Mr. Willis expressed himself as being fairly well satisfied with the season's business, in view of the success which the company has met with in handling its common brick, and looks for a good fall business.

Retailer Aids "Movie" Development

In no place in the country perhaps, has the "movie" theater reached such high development as in the city of Denver. It is the mecca of all Western tourists and for that reason has developed into a great show city, for nature has supplied mountain attractions and scenic wonders beyond description to those who come from the East. A whole street in Denver is given up to these picture theaters. They are most elaborately decorated with electric lights and a perfect effusion of architectural expression, in white, yellow and many other colors.

The construction of this plaisance has been the principal center for the delivery of building materials for the past two or three years, for under the ordinances of the city no other material for theater construction is permitted except concrete. All of the floors, balconies, boxes, domes and other portions of the theater are entirely of concrete. In one of the best of the theaters, known as the "Ideal," there is a splendid organ, the music from which constitutes a leading feature of every performance. The installation of the organ has been accomplished in something approaching perfection, for while there are other organs, the one in question gives by far the greatest satisfaction and develops the most perfect tones that have yet been achieved. Now, the cement, metal lath, concrete coating, and waterproofing were furnished by the Colorado Builders' Supply Co., and James D. Maitland, the enterprising sales manager of that concern, gave his personal supervision to many of the niceties in the completion and trim of the artistic interior.

When it came to the coating of the immense sounding boxes for the great Wurlitzer organ, he called to his assistance E. A. Foster, of Samuel Cabot, Inc., of Boston, to get the coating and surfacing exactly right. Now Foster is not to be found wanting in such a case. He and Maitland went upon the scaffold with the workmen and personally took charge of the completion of these sounding boxes. Incidentally Foster wrecked a perfectly good pair of trousers when the scaffold suddenly moved with the suggestion that it was going to fall but the result of the personal attention to the matter produced the best set of sounding boxes that any "movie" theater in the country can boast. Musical critics from all parts of the world have testified to the technical value of the installation, and it is probably due in large part to the concentration of expert service given by Messrs. Foster and Maitland in securing high results for their customer.

$1,500,000 COAL PIER AUTHORIZED.

At a recent meeting of directors of the Baltimore & Ohio Railroad Co. authority was voted for the construction of the proposed additional coal pier at the Curtis Bay terminal, Baltimore. It will have an estimated capacity of 10,000,000 tons a year, and will cost approximately $1,500,000. The plans for it, prepared by Francis Lee Stuart, chief engineer of the company, have been approved by President Willard, and they call for the latest design and devices which, besides affording rapid loading, will prevent breakage of coal when emptying it into vessels. Breakage will be avoided by a system of belts leading to movable towers, which will load into vessels on either side of the pier by means of shuttles and belts on the towers.

Car dumpers will be able to handle cars 53 feet long, and will have a capacity of 40 100-ton cars an hour. The belts will be run at speeds varying from 300 to 500 feet a minute. It is estimated that the maximum capacity of the pier will be 6,000 tons an hour, which is greater than any structure of the kind yet built. It will be possible to load two vessels on opposite sides of the pier with one or two dumpers which comprise the units of the pier. The pier will be 700 feet long by 115 feet wide, and of fireproof construction throughout.

The enlargement of the coal-handling facilities at Curtis Bay will place the port of Baltimore in the position of a strong competitor for the increasing export and coastwise traffic. The necessity for additional facilities has been felt by the Baltimore & Ohio Railroad as a result of the large growth in its coal traffic handled through Baltimore. The geographical position of the port and its nearness to the mining regions of Maryland, West Virginia and Pennsylvania have been important factors in its growth for coal exporting.

An illustration of the increase in Baltimore's coal tonnage is afforded by statistics, which show that for the seven months this calendar year a greater tonnage was handled over the Baltimore & Ohio's pier at Curtis Bay than during the year 1914.

Memphis Dealers Exhibit Wares.

Several of the building material firms of Memphis, Tenn., had pleasing exhibits at the Tri-State Fair, held on the old Montgomery race course, with ample buildings and large crowds to see the show. The Fischer Lime & Cement Co. showed its roofing, cement and plaster lines.

The Memphis Granolith Co., Rayner and McLemore streets, showed a line of flower vases, porch columns and its concrete burial vaults.

The N. C. & St. L. R. R., of Nashville, showed some wonderful lime exhibits, especially in reference to soil improvement. This road is rich in lime possibilities and crushed stone opportunities.

The Tri-State Builders' Supply Co. had a booth where were shown some burned clay vases and urns, chairs and decorations, a very extensive "Coosa" cement exhibit from the Ragland, Ala., territory and items of roofing, plaster, etc., that it is handling at Memphis. The recent work done by this firm on the "Shop of Culture" building has been the subject of compliment, the structure being a fine piece of concrete and terra cotta work with steel reinforcements. The Carroll-Blake Construction Co. of Birmingham was the contracting firm and G. M. Shaw the architect. This building was occupied in September.

MEMPHIS BUILDING MATERIAL NOTES.

Memphis, Tenn., Oct. 4.—The general business situation is a good deal improved here. Large crowds attended the Tri-State fair of Arkansas, Tennessee and Mississippi which draws to a close of a ten-day meeting this week. Winter building will be about normal, the prospects for the coming year are good and while summer trade fell off some, a good smattering of work was on and a few large jobs.

Louis J. Moss, of the Tri-State Builders' Supply Co., says: "The cement market remains staple, prices about the same and anticipations for the coming year good. We have completed several nice contracts recently. On roofing, lime, plaster and other building products the market is about normal."

J. C. Lovelace, of J. A. Denie and Sons Co., was also optimistic and said while the fight had been a hard one this year, the general healthy outlook in and about Memphis portended a more active situation for the coming 12 months. Better cotton prices, a general readjustment of trade and a desire for the modern being encouraging features along with sanitary work.

WISCONSIN FIRM READY FOR BUSINESS.

The Midland Lumber Co., which recently purchased a site for a new yard at Osseo, Wis., is erecting new buildings and is about ready for business. The old elevator on the property has been remodeled into a cement warehouse. A general line of building materials will be carried.

American Builders' Week at Fair.

San Francisco, Sept. 28.—Local interest in "American Builders' Week" is warming up as the time draws near. Advices from the East and many points along the Pacific coast are most encouraging as to attendance. The publicity committee has established headquarters at the General Contractors' Association rooms, 110 Jessie street, San Francisco, Cal., where all information can be had regarding the week of Oct. 18 to 23, which is to be the biggest event in the building history of San Francisco since the rebuilding of the city following the great fire. Aside from the building trades, the business community of the city has united in a plan to make Oct. 21 a general business holiday throughout the city.

The executive committee having the matter in charge includes the following well-known names in the building and material trades: William H. George, Charles M. Elliott, Alexander Coleman, Anson S. Blake, Henry Jacks, Harry Maundrell, D. Zelinsky, William E. Hague, E. J. Brandon and Charles Wright.

The finance committee includes the following names: William H. George, chairman, L. D. Bluxome, L. R. Boynton, J. W. Bender, W. T. Beck, J. W. Cobby, W. W. Dennis, Walter Dyer, D. O. Druffel, George Eastman, George S. Forderer, F. E. Irving, F. E. Knowles, H. T. Lally, L. F. Littlefield, Nels Larson, J. B. Leonard, P. McG. McBean, L. B. McDonald, Alexander Mennie, Ralph McLaren, F. C. Price, A. B. Sibley, Chris F. Seltz, Frederick W. Snook, A. C. Schindler and George Uhl.

E. G. Thurston is secretary of the Builders' Week Organization.

The general committee is made up of delegates from the organized branches of the entire building industry of San Francisco.

ATLANTIC CITY'S NEW HOTEL.

The new Hotel Traymore, at Atlantic City, which was opened recently, is said to be the largest and most costly resort hotel in the world. It represents an investment of about $4,000,000 and contains about 700 rooms. The construction is steel, concrete, Pompeian brick and tile. It has 18 floors. It has a grill with a glass ceiling through which may be seen sea fish in the actual conditions of life. The walls are decorated to suggest sea life. It has dining rooms on both the American and European plan.

PACIFIC COAST OPERATIONS.

Building permit valuations for the first eight months of 1915, as published in cities on the Pacific coast, are as follows:

San Francisco	$12,237,291
Los Angeles	8,241,888
Seattle	4,044,080
Portland	3,675,315
Oakland	3,313,341
Sacramento	983,570
San Diego	809,160

CAN'T SEE HARD TIMES.

Fowler & Pay, building material merchants and makers of the Austin bricklayers' cement, through their Minneapolis office, in charge of E. M. Reedy, state that they have had no occasion to suspect hard times this year. Business for them has been exceptionally good all year.

HOOSIER BUILDING SUPPLY CO. ORGANIZED.

F. B. Adams, G. C. Earle and E. C. Hervey have organized the Hoosier Building Supply Co. and will conduct a building supply business in Indianapolis. The company has been incorporated with an authorized capitalization of $12,000.

Future Building Looks Good.

New York, Oct. 4.—Louis J. Horowitz, President of the Thompson-Starrett Company, builders, was asked by a representative of ROCK PRODUCTS AND BUILDING MATERIALS this week for his opinion regarding the effect of the $500,000,000 Anglo-French loan upon national building and said:

The resumption of building construction in New York City depends, in my opinion, upon increased demand for space, the present inactivity being due to a large percentage of vacant area in buildings now in existence. This also applies throughout the country.

Demand for space, in turn, follows business activity; therefore any factor that stimulates business activity will also, in exact ratio, stimulate activity in building construction.

As the proposed so-called Anglo-French loan will undoubtedly encourage business in this country, builders may look for their share of business. The effect on real estate has already been noted by improved activities.

The upward trend of steel reflects a demand for steel products in raw materials rather than for actual building construction. Money for loans on buildings will become available so soon as lenders feel that it is safe and proper to encourage new building enterprises, which must in the last analysis be regulated by the law of demand and supply of space and that demand will develop in exact proportion as our industries reach their maximum capacity.

Another authority gave this angle of the big loan to American builders through ROCK PRODUCTS AND BUILDING MATERIALS:

For ten years we have been in the doldrums of a business depression. Now we are on the verge of prosperity. How long that prosperity will last remains to be seen. There is no foretelling its duration. It may be for a year, two years or a decade. Time alone can tell. But we can control our destiny in this regard to a great extent. We can fix our aim and try to develop that prosperity to the best of our ability.

Germany, Russia, the Balkans, Italy as well as China and Japan will have to establish similar credits somewhere, but where is the nation that can supply their needs unless it be the United States? Now then, does that look like a limitation of five years' prosperity? Will any one of those European countries be able to recoup its industries and farms in the next five years, even though the war were to stop tomorrow?

That means busy factories, high wages and plenty of savings in banks. Savings in banks means money to invest in mortgages. Mortgage money means building loans and building loans means demand for material. The finished building completes the cycle because the natural expansion of our industries creates greater demand for rentable space, whether it be store room, warehouses, offices or homes for workers. Demand for new buildings means re-establishment of new commercial and industrial centers which forces the worker to move to more desirable locations to live because he is more steadily employed and can afford greater comfort, and that means bigger returns for the property owner.

New trade conditions will develop. Exports will have to be made in many lines not now even conceived as possible. Capital has conceded advances to labor in many branches of trade. Anyone who gives the matter thought must realize that this concession of ten hours a day pay for eight hours' work must be permanent. The union never retrogresses in the matter of remuneration for its members, and the American captains of industry evidently realized this when they gave the concession in most cases without a serious struggle.

If labor is higher then materials must of necessity be higher. Materials for building construction are only cheap when building money is hard to get and building construction is conserved. But when there is a demand for building and money is cheap material costs advance in proper proportion to the advancing cost of labor.

So then, we have, first of all, a credit here of $500,000,000, 70 per cent higher than that ever before established in this country by joint nations. We find labor costs advancing everywhere. We find building money easier because the rate of exchange is assured as reasonably permanent and we know we have a positive market for our crops. That means agricultural prosperity. Agricultural prosperity means industrial development and industrial development means freer buying among railroads to keep up their equipment. It is when the railroads are prosperous that we have our best times and building materials are most active, because there is a demand for new structures.

Philadelphia's New Regulations.

The Bureau of Building Inspection of the city of Philadelphia, recognized to be one of the best civic departments of the kind in the country, has recently promulgated a series of regulations with regard to reinforced concrete construction, which are as follows:

Construction Plans and Specifications.

1. The plans and specifications required to be filed with the chief of the bureau of building inspection shall be accompanied by stress computations and descriptions showing the general arrangement of the entire construction in all important details, including the size, length, and points of bending of all reinforcement, the qualities, proportions, and methods of mixing the materials used in the concrete, and the dead and live loads each floor is designed to carry.

2. All such plans and specifications shall be signed by the architect, engineer, contractor or person applying for the permit. In no case shall the construction deviate from the approved plans and specifications except by written consent of the chief of the bureau of building inspection.

Inspection.

Every reinforced concrete building shall be erected under the constant supervision of a reputable and competent inspector furnished by the owner or architect, and acceptable to the chief of the bureau of building inspection. It shall be the duty of the inspector to keep a daily record of the work done, to observe whether the materials employed and the methods of construction are in all respects in accord with the specifications filed with the chief of the bureau of building inspection, and the requirements of these regulations; and to make record of all variations therefrom. A copy of these daily reports shall be filed with the chief of the bureau of building inspection, who is empowered to stop any improper construction until its faults are corrected, or to cause the removal of any defective work which he may consider dangerous.

A set of plans shall be on file at the building upon which the inspector of the bureau of building inspection shall mark in ink the progress of the work, and state the time and dates on which concrete for each portion of the structure was deposited; and the chief of the bureau of building inspection shall indicate thereon the date upon which the forms may be removed. Record shall also be made of the date upon which forms were actually removed.

Drying and Freezing.

1. When fresh concrete is exposed to rapid drying conditions, precautions shall be taken to keep it moist for a period of at least seven days after being deposited. Where practical this shall be done by a covering of wet sand, burlap or some other equally effective method. Thorough wetting twice a day is recommended.

2. In freezing weather all materials used in making concrete, particularly the coarse aggregate, shall be heated, and precautions shall be taken to prevent the concrete freezing while being deposited; and thereafter it shall be kept above 40 degrees until the concrete has obtained its final set, but such period shall be not less than 72 hours.

Quality of Course Aggregate.

All slag shall be clean, air-cooled blast furnace slag, weighing not less than 75 pounds per cubic foot, and containing not more than 1.3 per cent of sulphur as sulphides.

Cinders shall be composed of hard, well burned, vitreous clinker, free from sulphides, fine ashes and foreign matter. The use of gashouse, or locomotive cinders, or stove or heating furnace ashes, is prohibited.

The Industry at Large.

News has been received from Appleton, Wis., that the United States court has turned over to Green & Sons Co. of Appleton the plant of the Monmouth Mining & Manufacturing Co. of Monmouth, Ill. The plant has an annual capacity of 18,000 cars of vitrified sewer pipe. It is said that last December the company went into bankruptcy with liabilities of $110,000. Capt. C. A. Green of Appleton will be in charge of the plant, it is said.

The stockholders of the new Whitewater Brick & Tile Co. of Whitewater, Wis., held their annual meeting recently and elected the following officers for the ensuing year: President, D. F. Zuill; vice-president, W. D. McFarlane; secretary, Charles Walton; treasurer, John Steir; directors, George Crumb, Warren Thorne and C. F. Heath. The company has completed the erection of two modern and handsome buildings for its plant and new sidetracks from the Chicago, Milwaukee & St. Paul railroad have been laid. Drainage tile and fireproof brick will be specialties of the new concern, which owns some especially fine clay beds.

The West Jersey Sand & Gravel Co., Camden, N. J., has been incorporated to manufacture and sell building materials and supplies of all kinds with a capital of $100,000 by Michael J. McEvery and others.

The Lake Union Brick & Fireproofing Co. has been incorporated to manufacture clay products at Seattle, Wash.

Filschau & Maddox are building a sand and gravel screening and crushing plant at Bay City, Oregon.

E. M. Hafer, of Bloomington, Ill., will establish a tile factory at Hafer, Ark., to cost $100,000.

The Plymouth Brick Co., of Plymouth, N. C., contemplates building additional sheds and coal-burning kilns. It will double the present capacity of 15,000 to 18,000 bricks.

The Lyle Rock Co., Kansas City, Mo., which has two brick plants in Kansas City, reports an increase of operations on the strength of a growing business. Their contracts are chiefly on apartment buildings. They are now running about 75 per cent of capacity and turning out between 30,000 and 40,000 brick per day at the two plants. Mr. Lyle counts on increased volume for 1916.

The Star Sand Co. of Portland, Ore., has completed its dock on the waterfront at St. John's near Portland at a cost of $35,000. The dock will be used for handling sand, cement and ship ballast.

The Sheraden-Kirk Contract Co. of Portsmouth, Ohio, has moved its equipment to Beattyville, Ky., where it is securing its supply just below the government dam.

Questions and Answers

ROCK PRODUCTS AND BUILDING MATERIALS *is called upon to answer hundreds of questions relative to the manufacture, use, handling and sale of building and road construction materials. For the purpose of creating interesting discussions and thereby throwing greater light on these subjects, as well as to furnish inquirers with additional information, a few of these questions will be printed in each issue.*

Answers, containing information of value to the industry, will be published. In answering, refer to box numbers, addressing your replies to the Questions and Answers Editor.

Question No. 6—Please inform me the name of a company that can give information on the yardage of Gondola cars tabulated for use of sand and gravel producers. Address, Box 15.

Question No. 7.—We are desirous of obtaining names of manufacturers of fire brick and makers of better grades of silicate products who may be in a position to ship to Montreal. Address Box 16.

Question No. 8.—We would like to secure quotations on crushed rock f. o. b., Little Valley, N. Y. Address Box 17.

Quarry Power Problems.

Questions and Answers Editor:

We have read question No. 1 of the quarryman, who, on account of his steam power equipment wearing out, desires to figure on purchasing electric power on the outside, but who hesitates to make a change, owing to the fact that he is afraid he will not be able to operate his drilling equipment satisfactorily with electric equipment.

As a suggestion, we would advise that the quarryman consider the possibilities of using a big blast-hole drill, which can be operated on electric power or, if he prefers, can be fitted with a gasoline engine, thus making the drilling unit entirely self-contained.

Whether or not a big blast-hole drill can be used to advantage depends primarily upon the conditions that exist in the quarry. If the quarry breast will equal or exceed a height of 15 or 16 feet, then the big blast-hole drill will relieve the situation complained about, and in addition, will enable the quarryman to get out his rock at the lowest possible cost. It used to be the idea that it is necessary to have a quarry breast 30 feet or more in height before a big blast-hole drill would prove a paying proposition, but this idea has been very thoroughly exploded.

In the quarry of the Marble Cliff Quarries Co., near Columbus, Ohio, they are working breasts as low as 14 feet in height, and, both from the operating and economical standpoints, are getting excellent results.

Furthermore, The Buffalo Cement Co., whose quarry is located within the city limits of Buffalo, N. Y., are operating on breasts not exceeding 16 to 18 feet in height, and the results which they are obtaining are very satisfactory.

There is now to our knowledge in operation throughout the United States and foreign countries, several hundred big blast-hold drills, from which drills we have gathered an enormous amount of practical data which is always at the service of customers or prospective customers.

The Rock Point Sand & Gravel Co. has been organized by Pittsburgh capitalists and has already started work on mining sand near Wampum, Pa.

The Ford City Sand plant at Ford City, Pa., is resuming operations under the direction of Superintendent Walter Reisgen.

A new sand plant is being installed on the J. D. Mills farm near Uniontown, Pa., where a splendid deposit of sand has been found.

N. B. S. A.

Northwestern Retailers at Chicago

A number of retailers, representing leading cities of Northwestern states met at the Sherman Hotel, Chicago on Thursday and Friday, Sept. 7 and 8 for the purpose of discussing their mutual problems and attempting to master them. The call for the assembly was issued by E. H. Norblom, of the Landers-Morrison-Christenson Co., Minneapolis, Minn., who is one of the most progressive dealers of the territory. Mr. Norblom met with the prompt approval of the firms with which he had previously taken up the matter, and at Chicago these same dealers entered heartily into a detailed discussion of questions which sooner or later enter into the business of every building material dealer.

The main discussions centered themselves on credit arrangements of contractors and recognition of dealers by manufacturing concerns, as well as the advisability of joining the National Builders' Supply Association.

Believing that "in union there is strength," every man present who was not previously affiliated filed an application with the National Association. In addition, they organized themselves into a district committee of that association for the purpose of studying and solving problems of particular interest to their territory.

Mr. Norblom was chosen to act as chairman of the meeting and made a splendid presiding officer. Upon calling the meeting to order, he said in part:

About two years ago the dealers of St. Paul and Minneapolis organized an association for the purpose of encouraging manufacturers to sell through dealers, as well as to discuss local credit problems. I thought that if the dealers of the larger cities of the Northwest would get together, it would materially help matters. I took the question up with President Allen, of the National Builders' Supply Association, and secured the approval of that organization. Unless we organize, we have no case. We have some rights. If we ask for them, we will get them; if we don't, we won't get them.

The next speaker was Charles Weiler of the Western Lime & Cement Co., Milwaukee, who has been a member of the N. B. S. A. for many years. Mr. Weiler commended the association and urged the dealers present to join. He referred to the strength of labor organizations and stated that only because of their united efforts was it possible for them to compel employers to grant their demands.

James Fryer, president of the Builders' Commercial Agency of Chicago, who has for a long time been affiliated with every branch of the business, told of the experience of Chicago dealers and their possible attitude toward the proposed movement.

Following Mr. Fryer's talk, experiences were recited and improvements proposed by each of the following men:

H. E. Speaker, Speaker Lime & Cement Co., Superior, Wis.

W. D. Stewart, St. Paul Builders' Material Co., St. Paul, Minn.

S. E. Matters, Standard Salt & Cement Co., Duluth, Minn.

John F. Keefner, Des Moines Building Material Co., Des Moines, Iowa.

Charles Woodward, Wisconsin Lime & Cement Co., Chicago.

George A. Olsen, Rock Products and Building Materials, Chicago.

James H. Allen, president National Builders' Supply Association, Lincoln, Neb.

Louis F. Desmond, secretary National Builders' Supply Association, Chicago.

Edward K. Cormack, Wisconsin Lime & Cement Co., Chicago.

After Secretary Desmond had thoroughly and clearly explained the objects of the National Builders' Supply Association and answered the many questions propounded to him by the men present, an adjournment was taken for luncheon which was enjoyed at a large round table at the College Inn, one of Chicago's finest eating establishments.

After the luncheon discussions were again resumed, with the result that every man present signed an application to join the National association.

An adjournment was then taken, to meet again the next morning for further discussions and adoption of some practical plan of operation.

A tentative arrangement was made to hold another meeting in the near future and invite to such meeting dealers from centers not represented at the Chicago meeting. This meeting will undoubtedly be held at Omaha.

Indiana Committees Hold Interesting Meetings.

The latter part of September continued to show that the district Committee plan, which the N. B. S. A. has started to put into effect and the operation of which has first been started in the state of Indiana, is going to keep on interesting the dealer in building materials in a manner far more effective than any other idea or method that has ever been considered.

Elkhart Draws Northern Indiana Dealers.

District Committee No. 3 of the Indiana Division held its regular monthly meeting at the Hotel Bucklen, Elkhart, on Wednesday evening, Sept. 22. The meeting was called at the regular hour, 6:00 p. m., and when that time had arrived all but a few of the members were present. Before 6:30, everyone was at the table and the festivities commenced.

R. W. Monger, of Elkhart, to whom had been intrusted the duty of arranging for this meeting, fully justified the confidence which was thereby placed in him, by inducing the hostelry to put on an extra spread, at the conclusion of which everybody voted they had selected a good host.

The regular meeting was called to order by Chairman Walter M. Hildebrand of South Bend and after his opening remarks, he called upon Mr. Monger to say a few words. Mr. Monger stated that in view of the stand which the association has decided to take with reference to the matter of curbing the reckless extension of credit, he had requested an official of one of the large banks in his city to attend this meeting and speak to the dealers present as to the methods pursued by an industry, if we may call the banking business such, which, without a doubt, is run according to the strictest and best business principles. The banker then gave an interesting talk on the subject of credits and the relationship that successful business bore to well-regulated credit conditions. When he had finished, the meeting showed its appreciation of the splendid advice that was given.

Secretary L. F. Desmond was then called upon to say a few words, and he also took up the same subject as the preceding speaker, emphasizing the fact that when you have arrived at the point where you are just as sure as human endeavor can make it, to receive as prompt payment of your bills from your customers, as the dealer is compelled to make returns to the manufacturer from whom he buys, 95 per cent of your troubles have ceased and you have started on the road to a more complete knowledge of your business. In other words, the time that has heretofore been devoted to collections, and many a fruitless moment has thus been spent, can be used to far better advantage in the promotion of your business along good, up-to-date lines.

After Mr. Desmond had finished, a general discussion followed which was participated in by everyone present and when the meeting adjourned, it was the unanimous consensus of opinion that the meeting to be held on Wednesday, Oct. 27, at Mishawaka, would reflect still greater advancement, and a much increased attendance, due to an enlargement of the membership in this committee in the time intervening.

Retailers at Ft. Wayne and Kokomo.

The above report of the meeting at Elkhart can be truthfully repeated about the meetings held by District Committee No. 2 at Ft. Wayne on Sept. 23 and Committee No. 6 at Kokomo on the 24th.

Chairmen Theo. C. Schwier of No. 2 and John H. Pananaker of Committee No. 6 are working just as hard as are the chairmen of every other committee, and it is this spirit of sacrificing perhaps a few moments of your time, to stop and reflect whether you cannot serve to improve your conditions by seeking to help the other fellow out, that has made the greatest examples of present day success that we have in any field of endeavor.

The motto which the N. B. S. A. has adopted and whose principles it hopes to spread broadcast in a systematic manner, is

"MORE PROMOTION—LESS COMMOTION,"

Which simply means that any business which is to be successful must be brought to that point by means of energetic promotional work. The dealer in building materials should, and if he is to succeed must, realize that his greatest success will lie in coöperating to enlarge the sphere wherein his interests rest.

Builds Sewers With Concrete.

Concrete is slowly winning its way as a sewer material in Kansas City as the public becomes better informed on the subject. The past attempts have been excellent teachers for the Kansas City contractors and there is hardly any question but what the one that is now being constructed will be a success.

It will have a round interior and a square base on the bottom. There will be 164 feet of 84-inch, 1,380 feet of 60-inch and 680 feet of 54-inch pipe. There will be ten tributaries with a total of 1,700 feet, ranging in size from 15 to 36 inches. The cement will be reinforced with three-fourth-inch steel rods every nine inches. The rods will be tied at the spring line and at the crown. A head wall twenty-two feet wide and eleven feet high with two wings has also been constructed.

The amount of cement that will be used in the work is about 5,000 barrels. The cost will be $40,000. The cement is being furnished by the Dewey Portland Cement Co. The contractor is L. E. Koehler, Produce Exchange, Kansas City, Mo.

Samuel D. Fessler, of Hollidaysburg, Pa., has bought a property in that town and will build a planing mill and stock up with builders' supplies.

NEWS of the TRADE

Boston Has Active Fall Season.

Boston, Mass., Oct. 4.—Fall building and general construction work in Boston and vicinity continues active and leaders in the supply market report a better feeling than has been present for some time. The building record of the last half month records the issuance of 242 permits, with valuation of $2,175,000, according to the F. W. Dodge Co., statistical bureau. For all New England the week of Sept. 15 to 22 showed contracts awarded amounting to $3,645,000.

Final settlement is still awaited of the matters at issue politically between organized labor and the state authorities on the matter of the big government drydock. This has been expected to be a big winter work proposition, but from the way it is dragging there is little telling right now just how it will come out. Work has been started by the contractors on 4,000 feet of new automobile boulevard beside the Charles river from Faneuil to Newton.

Public work goes ahead fairly in the immediate locality. Work has just begun on a $36,000 contract for grading, drainage, walks and concrete work in Ronan park. The city may repeat its plan of continuing sqwer work through the winter, as it did last year when there was a critical unemployment situation, additional contracts having just been let in Roxbury and Brighton.

The local New York, New Haven and Hartford railroad yard handled 300 cars more in September than the same month last year. It means largely munitions movements, and these mostly overland, for the ships leaving for Europe from Boston piers are as scarce or scarcer than ever. Tonnage is heavier, however, in cement, brick and other materials going into the construction of additions to mills and warehouses of plants turning to munition and war supply manufacture. A large paper industry in South Boston switched to munition-making this week and similar ventures are of more frequent occurrence.

Proposals for a large new subway to Mattapan are in store for legislative action this winter as well as a spur from the Bolyston street subway to South station. Demands are also coming forward strong for abolition of one of the large terminal structures on the Elevated (Dudley street terminal) on the south end of the system. Important additions to the subway system of the city are thus almost certain, although the opening of two large branches the past summer was thought, in connection with the Dorchester tunnel still in process of driving, to complete for a short time at least the burrowing plans of the rapid transit commission and the street railway company.

These are some of the conditions which account for reports of "business good" presented today to the representative of ROCK PRODUCTS AND BUILDING MATERIALS on a round of the dealers, manufacturers and jobbers.

James C. Lincoln, of Waldo Bros., Inc., said it could be realized that in important circles there was better feeling. This is a representative remark and conservative alongside expressions of downright good in other places.

The Eastern Clay Products Co. reports the year coming to a close with business at least 100 cars ahead of 1914. According to the early outlook and conditions as they have been in sewer pipe for the year, they do not hesitate to say that this surpasses expectations. They also report the outlook favorable.

Outside of these things most everybody here is on the watch for world series tickets for themselves and a few guests from the interior expected with late fall orders the last of the week.

New Orleans Loses Millions.

New Orleans, La., Oct. 1.—New Orleans emerged today from the worst hurricane in the history of the port. Twelve people are dead in the city proper, a score or more were injured and $3,000,000 damage was done to property. In the sections immediately surrounding the city 100 people were drowned, according to the meager reports of today, but it is feared that this figure will be greatly increased when full reports are in.

Practically not a business house or a residence was left untouched. Fire has done quite a bit of damage. Building material men, especially those handling roofing and lumber, are facing an unprecedented situation, with more orders than they can handle. The glass and plate-glass damage will run to an enormous figure.

Though the storm has brought their immense business to a total standstill, the Jahncke Navigation Co. and other allied Jahncke interests have offered the use of every available tug and barge in their service for rescue work. According to a statement from Walter F. Jahncke, vice-president of the company, the company is entirely out of building materials, many of their sand, shell and gravel barges not having been located and numerous other troubles confronting them. They will, however, bring their business back to normal within a short time.

The largest individual loss, probably, will be that of the Monongahela Coal and Coke Co. The tug Corsair, owned and operated by them, sunk during the height of the storm in the Mississippi River at Nine Mile Point, a short distance from New Orleans. Four men, including Capt. S. J. Menges, manager of the floating stock of the company, were drowned. The Corsair was towing a fleet of more than 200 barges with coal aboard worth more than $1,000,000. Some of the coal will be salvaged.

Donaldsonville, La., and vicinity paid heavy toll to the tropical storm of Sept. 29. The West Kentucky Coal Co. sustained a loss estimated at $245,000 through the sinking of seventy loaded, two empty coal barges and four pump boats. The reserve fleet maintained by the company, eleven miles from here, was completely wiped out. At Port Barrow, a coal loading station, the damage reached $20,000. A total of 36,000 tons of coal was contained in the seventy barges which went to the bottom, but it will be possible to salvage a certain portion of this by dredging.

A tugboat and barge, property of the Bisso Towboat Co. and loaded with coal, sank in the Mississippi. The lost is $75,000.

At Baton Rouge, La., two empty barges and one barge loaded with sand, property of William McCausland, went down. The Baton Rouge Coal and Towing Co. lost four barges. Later advices state that it is probable that other dredges and tugs in the vicinity of Profit Island, near where J. W. Thompson, of New Orleans, has his sand and gravel plant, have gone down.

Other losses of coal companies in New Orleans are authoritatively stated to be as follows: W. G. Coyle & Co., $40,000; Crescent City Coal Co., $50,000.

Milwaukee Building Records Broken.

Milwaukee, Wis., Oct. 4.—The building investment in Milwaukee during the month of September showed a gain of $1,754,851 and established a new high record for that month. There were 332 permits issued for structures to cost $2,961,938, as compared with 379 permits and an investment of $1,207,087 during the corresponding period a year ago. During one week alone, when a permit was granted to the Chicago & Northwestern railroad for the erection of its new concrete elevator in Milwaukee, costing $750,000, the building investment climbed above the $1,000,000 mark. The total record for the first nine months of the year shows a good gain over the same period in 1914 and Building Inspector W. D. Harper is confident that the total investment for the year will show a much larger increase than was anticipated a couple of months ago. Plans have been made for the erection of several large structures during the next few months.

Most building supply men of Milwaukee are skeptical of the suggestion made in some quarters that the cost of building materials will be reduced during the winter months, in order that building operations during that period may show more activity and employment be furnished to many who would otherwise be out of work.

"Building material at the present time is sold at such a close margin that it would be impossible to reduce the price," said A. F. John, of the Milwaukee Building Material Exchange. "I do not believe that it is because of the price of building material that building operations are sometimes held down, but that this is usually brought about by a general depressed condition in business."

BUILDING CONDITIONS CONTINUE TO IMPROVE.

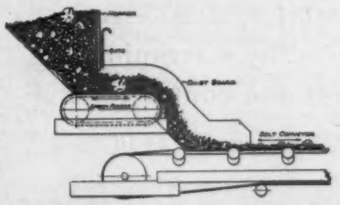
New York, Oct. 4.—Unofficial returns for building construction for September, according to building report companies here, show a probable gain in volume and value over August's, which developed a gain of 13.7 per cent. Returns available here at this date are only estimates, but New York, counting all five boroughs, showed 1,129 new building plans filed in September as against 1,004 in August with values about evenly balanced, namely, $11,854,578 for September as against $11,877,743 for August.

Building money in this city is much easier. Where premiums or bonuses for accommodations formerly ran as high as 30 per cent six months ago, it is possible to get building money for less than 10 per cent bonus now, and, indeed, there have been cases reported where loans have been made at six per cent flat without premium or bonus. All building materials seem to be scheduled for higher levels either during the present quarter or after the turn of the year. There is not a commodity on the New York building material market that is selling today at the same level ruling 60 days ago.

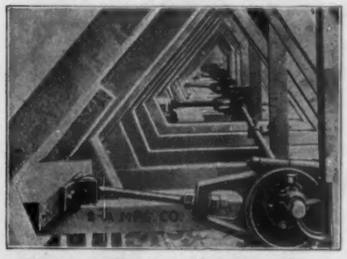
TWO CONCRETE BRIDGES CONTRACTED.

The Foster Construction Co., Newark, N. J., specialists in concrete construction, have been awarded contracts for two concrete bridges at Binghamton, N. Y. The contracts amount to $22,000 and work will be started on them at once in order to bring them to completion before winter comes on.

A self-contained unit of the S-A Steel Apron Type



This diagram shows the large opening beneath the hopper and the uniformity of the feed of the automatic feeder shown above.



A battery of 16 reciprocating plate feeders delivering onto belt conveyor. Conveyor is located between bins of gravel and silt and proper proportions delivered from each bin by feeders.

Taking "Peak Loads" Off the Conveyor

is like taking the peak load out of a power plant. Instead of installing and paying for oversize equipment to take care of sudden fluctuations of many times the average output, you can use far less expensive equipment both initially and for upkeep and power costs if you have the same output continually, and always handle it at full capacity. That's true economy—and it is made possible in **any** conveying system by installing "S-A" Automatic Feeders. They prevent an uneven flow of material onto the conveyors—cut out the sudden strains, clogging and heavy upkeep costs that go with it, and regulate the flow of material, so perfectly that no peak loads or even noticeable variations can occur. Result—a smaller crusher or conveyor consuming less power and operating at full capacity handles the same or even more material than a conveyor of double its size without a uniform feed. And furthermore, the even flow of material properly delivered from a feeder in line with the belt reduces belt wear 50 to 75%.

WE MANUFACTURE A TYPE OF FEEDER TO FIT EVERY CLASS OF SERVICE, TWO OF WHICH ARE SHOWN ON THIS PAGE.

Stephens-Adamson Mfg. Company

Aurora, Illinois

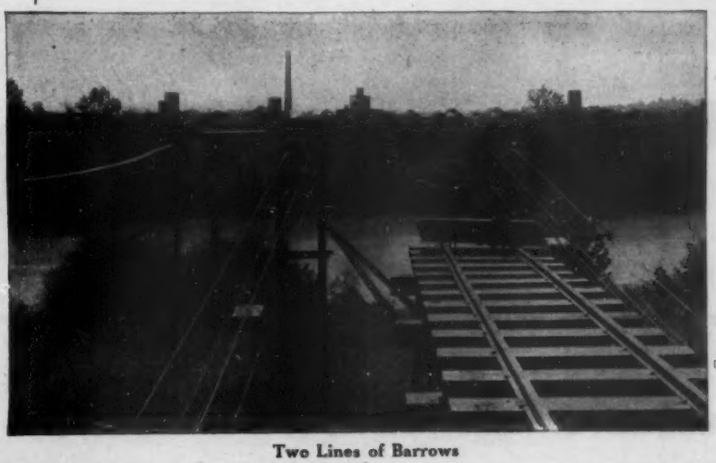
NEW YORK · CHICAGO · SALT LAKE CITY · HUNTINGTON, W. VA. · PITTSBURGH · LOS ANGELES · BOSTON · ST. LOUIS · DETROIT · TORONTO

We design and manufacture conveying machinery for rock crushing plants, gravel washing plants, storage systems, etc. Also transmission and screening equipment, elevators, gates, feeders, car pullers.

Consider!

You have to haul clay, ore, sand or any other material five hundred feet to five miles.

This material is in or can be brought to a small bin with discharge chute attended by one man.



Two Lines of Barrows

A continuous stream of barrows pass the bin, each receiving its full load, the operator simply opening and closing a gate in the chute.

The barrows pass on down the line through the air, at the end they automatically turn over, dump the load and pass back to the starting point ready for another load.

Not a human being touches the barrows! They move along regularly and automatically.

This Is a

Lawson Loop Line Tramway

Can You Beat It?

Write for full information

Ambursen Company

61 Broadway, New York City

HY-RIB

for Roofs, Floors, Walls, Partitions, Ceilings, Furring, etc., is being demanded by discriminating architects, owners and contractors.

Do Not Overlook Such a Sales Opportunity

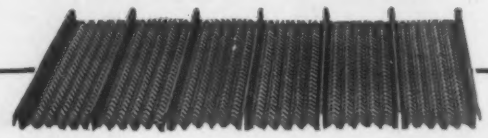
Every dealer in builders' supplies can please his customers by handling the Trus-Con complete line of Hy-Rib, Metal Lath, Steel Studs, Corner Beads, Base Screeds, Concrete Reinforcement, etc.

Write for prices, samples, etc.

KAHN Building Products — TRUSSED CONCRETE STEEL CO.

TRUSSED CONCRETE STEEL COMPANY

Dept. H-26 **Youngstown, O.**



THE BELDEN BRICK CO.

Incorporated 1893

Sales Offices: **CANTON, OHIO**

FIVE MODERN FACTORIES

producing practically every color and texture of Face Brick put us in position to take care of the dealer to the best possible advantage. It will pay you to have our samples and prices. Write now.

FACTORIES:

Canton, O. Somerset, O. Port Washington, O. Uhrichsville, O. Tuscarawas, O.

CERESIT
TRADE MARK REGISTERED

Waterproofing Compound

The everlasting waterproofing for all concrete, cement and stucco work.

Sure, Dependable Results Have Created a Large Demand for These

CWC PRODUCTS

Floor Hardener
Damp-proof Plaster Bond
Damp-proof Coating
Stone Backing
Weather-Wear Roof Coat
Ceresitol

Specified by the leading architects and engineers everywhere. Dealers should send for literature, full facts and an outline of the tremendous sales possibilities of Ceresit.

Ceresit Waterproofing Company
924 Westminster Bldg.,
CHICAGO

More Service = More Profit

Serve your clients—the architect, owner and builder—better by showing them the many practical uses and advantages of

Excelsior Caen Stone Cement

It is shipped in powdered form and when applied, exactly reproduces in color and texture the soft, restful effect of the famous quarried French Caen Stone. Used for finish coat on walls and ceiling of libraries, clubs, theatres, churches, apartments and the home. Send today for booklet and sample.

The Cleveland Builders' Supply Co.
MANUFACTURERS
The Leader-News Bldg.,
CLEVELAND OHIO

Handling Material

is one of your problems. It has been one of ours. We have solved it for you with the

C.R.S. Locomotive Crane

Power—Speed—and Capacity—with the lowest operating and maintenance cost to you.

Let us explain the economy of our equipment for your operations. Write us

The Cleveland Railway Supply Co., Cleveland, Ohio

The first Portland cement manufactured in America

1866 PORTLAND SAYLOR'S CEMENT 1915

COPLAY CEMENT MANUFACTURING CO.
Mill, Coplay, Lehigh Valley, Penna.
PHILADELPHIA NEW YORK BOSTON JACKSONVILLE, FLA.

LINK-BELT CRANES FOR SERVICE
Simplicity—Strength—Convenience. Everything the operator can desire

LINK-BELT COMPANY Philadelphia Chicago New York

Don't take our Word

for the superiority of "Kno-Burn" both as a lath and as a selling proposition for you.

Ask the architects and contractors in your town what they think about

Kno-Burn
Expanded Metal Lath

Then, better still, send us a trial order and let us prove our claims as to prompt shipment and attention to orders.

The most profitable lath for you to handle is the one that comes in enough styles to fill any sort of order; that is well known to your trade; and that has shipping facilities that make it unnecessary for you to tie up any amount of money in laying in a stock—that lath is "Kno-Burn."

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North Western Expanded Metal Co.
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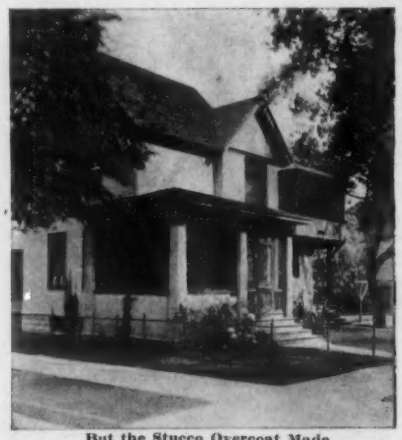

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Pittsburgh Market Slow.

Pittsburgh, Oct. 4.—In general retailers are a little slack of work this month. Things have not picked up in September as the weather and general business conditions seemed to promise. Ordinarily September is a very good month with dealers in builders' supplies. This year, in spite of the fact that many big projects are near the contract stage, there has not been the activity in actual letting of jobs that was anticipated. Orders to retailers for this reason have been rather slow and irregular. The retailers' stocks are not large, and it would not take a large amount of business to clean them out and make good business for the wholesalers and manufacturers later in the fall. As it is, these latter are pretty glad to get rid of their stocks, and close competition prevails all along the line. Street work is more prominent in fall business than house building. The latter has been dull all summer, and although some new projects have come on to the boards lately that promise fairly good business a little later on, still the bulk of this is not enough to create any special demand.

In general business conditions are very much improved in this district, for the steel plants are working at about 95 per cent capacity, and this always spells prosperity for the Pittsburgh district in a very short time.

The Birmingham Supply Co. reports street work pretty good on the South Side. Most of it, however, is repair work on old city streets. There is little sewering being done, and in the South Hills district, where street work was plentiful last year, there is almost nothing doing at present. This company has been fortunate in delivering a large amount of material this spring for the Carson street improvement and, also in securing contracts for material for a street in South Hills earlier in the summer.

The East End Builders' Supply Co. announces very little building coming forward at present. In general this season has been better than in 1914. Its chief business has been in cement, sand and gravel.

Pihl & Miller, from their headquarters in the Wabash building, report quite a lot of figuring being done, but say that prices are very low. In general there is no particular snap to the situation as they see it at present.

The Western Reserve Lumber Co. at Warren, Ohio, has started work on a big storage and show house which will be 151 by 140 feet and two stories high and will have a frontage on the B. & O. tracks. C. L. Woods is president of this company, which is one of the most successful retail concerns on the Western Reserve.

Conditions in Western Canada.

Winnipeg, Man., Oct. 4.—Present weather conditions in Western Canada are against any improvement in the building and engineering trades and their allies at the present time owing to the fact that it has practically rained without cessation for almost two weeks.

Several new buildings are contemplated in the West this fall. At Rosthern, Sask., Lyons Bros. intend to erect a large new store. Messrs. Peter Lyall & Sons, of Winnipeg, have been awarded a large contract for the erection of the new terminal station at Toronto, the price for which was in the neighborhood of $12,000,000, including the station and the viaduct that will be necessary.

One of the largest factors which will count in the prosperity of Western Canada is the fact that this year's crops are valued at $330,000,000, made up as follows:

Wheat	235,000,000 bushels	@ $ .85	per bushel
Oats	270,000,000 bushels	@ .35	per bushel
Barley	54,044,138 bushels	@ .46	per bushel
Flax	6,645,370 bushels	@ 1.45	per bushel

This will mean the distribution of $330,000,000 among builders, lumbermen and supply houses this fall, which should considerably improve present conditions.

There is almost a famine of barbed wire in Winnipeg owing to the great increase in the price of zinc spelter, the price today is 18¼ cents, while it has been as high as 30 cents.

There has been completed at Edmonton, Alta., a $500,000 Arts building for the Alberta University. George Fuller & Co., of Winnipeg, were the contractors for the building, while Messrs. Nobbs & Hyde, of Montreal, were the architects.

The city of Edmonton, Alta., is considering four different sewage disposal schemes, prepared by the city engineer, A. J. Latornel, and involving expenditures varying from $588,000 to $761,000. Three of the schemes, to cost $613,000, $675,000 and $761,000, provide for four plants at different points on the river (North Saskatchewan) for receiving and treating the sewage. The fourth scheme calls for three plants and for a tunnel under the river to carry the south side sewage to the north side plants for treatment. All four schemes propose a plant on the river bank at the foot of One Hundred First street to cost $50,000. This plant will likely be the first constructed, as it is common to all schemes under consideration. Its immediate construction has been recommended by the public works committee.

A. McGillivray, provincial highways commissioner for the province of Manitoba, has announced that work will commence immediately on a fine system of graded roads in the municipality of Brokenhead, which is just east of Winnipeg. In all, 47 miles of road will be constructed under the provision of the Good Roads Act.

The work of erecting the $4,500,000 parliament buildings at Winnipeg has been re-started after having been shut down for many months owing to the fact that many irregularities have been discovered in the letting of the contract, the quantity and quality of material used, and owing to the fact that there was considerable mystery why the concrete foundations were altered to concrete caissons. A royal commission was appointed to investigate these matters and they have returned the verdict that the contractors and the late government are at fault and are guilty of serious offenses against the province. The ministers of the late government are now being tried under different accusations, while Thomas Kelly, contractor for the building, has been arrested on many charges in Chicago. The James McDiarmid Co., Ltd., have been awarded the contract on a five per cent basis. It is anticipated that tenders will be called next spring and a new contract awarded. The walls are practically up. On the job there is esitmated to be over $60,000 worth of machinery belonging to the late contractors. There are 396 caissons in the building carried down to hard pan, 327 being circular, the remainder being rectangular. Over 20,000 cubic yards of concrete have been used in the caissons, which are sunk at a depth from 40 to 50 feet. The quantity of concrete used to encase the grillage is also over 2,000 cubic yards. The weight of the steel on the grillage is 1,055 tons. The quantity of cut stone set in place at the time of the royal commission was 84,300 cubic feet, while there is almost 50,000 cubic feet on the site ready for setting. There have been almost 6,000,000 bricks used so far. Double this quantity will finish the job. All the floors are of concrete four and one-half inches thick, reinforced with triangle mesh and supported on rolled steel I-beams encased in concrete. The quantity of concrete in the floor slabs and encasing the floor beam at the time of the inspection was 1,682 cubic yards.

The new law courts building at Winnipeg has also just been completed. The cost of this building was $1,250,000. The foundations were of reinforced concrete and had concrete floors throughout the building. Cut stone is used for the exterior walls, backed by local clay brick. The main walls are 22 inches thick. Three million brick, 150,000 cubic feet of cut stone, 800 tons of iron and steel, 35 carloads of marble and 100 carloads of cement were used in erecting this building.

Eastern Canadian Conditions.

Toronto, Oct. 4.—Records at the office of the building inspector of Hamilton show that the value of the new buildings for which permits have been taken out this year is very large. While the figures for the year so far are not available at the time of writing, some 30 of the buildings have a value of $7,412,000. A few of the larger buildings started this year are: Connaught hotel, $600,000; T. Eaton Co.'s factory, $100,000; Mount Hamilton hospital, $125,000; St. Joseph's hospital, $80,000; sanitarium building (addition to city hospital), $150,000; Mercury mills, $250,000, and Canadian Horse Shoe Nail Co., $125,000. Hamilton dealers state that this and the construction of several other factories has kept the building material business on a firm foundation although there was quite a bit of outside competition.

In Toronto, the city architect has the same staff as last year, that is, 38 persons. Two members are busy on revising the building by-laws and in this connection a series of tests are being carried on with brick taken from the different plants selling their products in Toronto with a view to allowing a wider use of brick and in different forms of construction than is now permitted in the city.

Work on the new Union Station at Toronto was started this week. This with other improvements will cost $12,000,000. The whole work is under the supervision of the Toronto Terminal Co. The contract for the station has been awarded to Peter Lyall & Son. W. T. Griffiths of that company is superintending the work of construction.

Recently the cornerstone of a new station to cost $125,000 at North Toronto was laid. This is being erected by the C. P. R. and C. N. R. The cornerstone of a large station at Quebec being erected by the C. P. R. has also been laid. This activity on the part of the railways will help the building business to a large extent, when builders' supply firms were looking for a very slack season.

KISSEL COMPANY BUILDING.

Ground was broken last week for the first of an important series of building operations at the plant of the Kissel Motor Car Co., Hartford, Wis. President George A. Kissel explains that the company is preparing for the doubling of its production of KisselKars in the near future.

Two new buildings are started, one for storage and shipping, and one for the enameling department. The former is to be 100 feet long and the other 110 feet long, each being 35 feet in width.

The third structure, soon to be started, is a modern four-story office building, which will house all of the executive and clerical forces of the company, including the cost and draughting departments. This will not only provide much better accommodations and facilities for these departments, but will also release a large amount of floor space for manufacturing purposes.

CONCRETE INFORMATION BUREAU.

Dallas, Tex., Oct. 4.—The Chamber of Commerce and Manufacturers' Association, of Dallas, recently added a new bureau to its working organization which promises to be of vast benefit in promoting the use of concrete for a wide variety of purposes. The purpose of the new department is to furnish the public with information as to the uses of concrete. It is in charge of L. S. Bruner, an engineer who has had much experience in the practical handling of concrete material. He will comply with all requests for information as to the tools necessary in manufacturing and laying concrete, where such tools may be purchased and for what purposes the material may be used. This information will be free of cost to anyone who asks for it. The bureau is maintained at the expense of manufacturers who are interested in broadening the concrete field.

CONCRETE

Concrete for Permanence in Railroad Work

Among the first, as well as the largest users of Portland cement, have been the railroad managements since the product was first introduced. Naturally the earliest uses to which concrete was devoted were trivial experiments, but these were followed by larger and more important improvements as the confidence of the best informed engineers became more firmly fixed and experience taught invariably that this confidence was well founded.

The enormous quantities of concrete employed by the engineering departments of the railroad organizations at the present time is one of the best and most wholesome endorsements of which the industry can boast. It is peculiar of railroad construction that the major part of the work done in the past has been more or less of a temporary nature. The frequent replacement of steel rails, the brief life of wooden cross-ties, the early abandonment of wooden bridges and the present disposition to dispense with iron and steel bridges wherever such a thing is possible, clearly show that permanent structural improvements of concrete are superior from an economic point of view than any other. A much larger percentage of replacement structure and new railroad construction year by year is going into concrete for no other reason than the long value upon the invested dollar.

Of late years the railroads have been confronted with the condition of having reached the full capacity of traffic for their equipment in the transportation business, and this develops the necessity for the best obtainable construction throughout the entire right-of-way so as to maintain continuously the maximum of efficiency. In this feature concrete has made good in big numbers.

Prominently amongst the great works which have been under construction during the present season are two mammoth viaducts on the line of the Lackawanna railroad, near Scranton, Pa. These are known as the Tunkhannock Creek viaduct and the Martins Creek viaduct (see illustration on front cover).

The Tunkhannock viaduct, 22 miles west of Scranton, has a length of 2,375 feet and is 240 feet above the surface of the stream. It is the largest concrete bridge in the world, consisting of 10 spans of 180 feet each and two spans of 100 feet each. It contains 168,000 cubic yards of concrete and 2,280,000 pounds of reinforcing steel. All of the pier foundations were carried down to solid rock which averaged about 60 feet. Two of them requiring excavations of 95 feet below the surface of the ground.

The Martins Creek viaduct is immedately west of the Tunkhannock valley. It rises 150 feet above the level of the stream and is 88 feet higher than the level of the old road bed of the Lackawanna line. It consists of 11 spans, seven of them being 150 feet, center to center, two of them 100 feet and two 50 feet. The total length of this viaduct is 1,600 feet, 78,000 cubic yards of concrete are required for its construction and 1,600,000 pounds of reinforcing steel. Although less than half the size of the Tunkhannock viaduct it is the second largest structure of its kind in the world.

When the work on these improvements is completed, and connections with the main line made, the Lackawanna railroad will have the shortest and quickest route between New York and Buffalo by 30 minutes, according to engineering and operative estimates.

The Kensington Cement Co. of Glenwood, Minn., reports a good business. The force has been increased lately and the outlook is good. They are now putting out a line of water troughs, grave enclosures and a lot of concrete novelties.

Novel Device Prevents Road Washing.

A novel but thoroughly practical device is used in the state of Maryland to prevent the washing of road shoulders and gutters. According to H. G. Shirley, chief engineer of the Maryland State Roads Commission, these "breakers," as they are termed, answer their purpose so well that they will pay for themselves after two or three heavy storms. They are considerably cheaper than cobble-stone butters, give thorough protection to the shoulders of the road and may be used on any type of highway, including lanes and driveways.

Briefly described, the breaker consists of a low concrete barrier extending from the edge of the road diagonally through the shoulder to the ditch. It is built flush with the surface of the road shoulder, and where highways are patrolled and shoulders kept in repair, it is no obstruction to travel. Breakers are spaced as occasion may require, and are neither expensive nor difficult to build. The Maryland breakers are 12 inches wide and 18 inches deep. As stated, spacing varies with the nature of the soil, grade, and the amount of water they encounter. Thus it would probably be necessary to space them closer at the bottom of a hill than at the top. On five to 6 per cent grades and medium soil the breakers are spaced 25 to 30 feet apart. Where the soil is liable to wash and the grade steeper, they would be spaced much closer. The length as well as the grade of a hill would also influence the spacing.

CONCRETE "BREAKERS" AS USED ON MARYLAND ROADS.

The illustration shows a macadam road with a concrete breaker extending across the shoulder of the road in the immediate foreground, while beyond appear additional breakers, the spacing in this instance being approximately 25 feet.

Local materials are usually used to build the concrete breakers. This makes the cost very low, and as the requisite materials are found in practically every section of the country, breakers could be used with economy on all types of highways, even including the common dirt road. A great deal of repair work of costly nature is occasioned by torrential rains, resulting in serious washouts, and judging from the success obtained by the use of the breakers in Maryland they would be an economic investment in all parts of the country.

Big Increase in Concrete Road Mileage.

The mileage of concrete pavements in the United States has increased rapidly, and it is likely to continue to increase, according to a new bulletin of the United States Department of Agriculture. This bulletin gives the estimated amount of concrete pavement in the United States in 1914 as 19,200,000 square yards; in 1909 it was only 364,000 square yards.

The principal advantages of concrete pavements which have led to this increase in popularity are said to be:

1. Durability under ordinary traffic conditions.

2. A smooth, even surface offering little resistance.

3. Absence of dust and ease with which it may be cleaned.

4. Comparatively small cost of maintenance until renewals are necessary.

5. Availability as a base for another type of surface if desirable.

6. Attractive appearance.

In commenting upon these advantages, the bulletin states that the durability of concrete roads has not yet been proved by actual practice, because there are no very old pavements as yet in existence, but from the condition of those which have undergone several years' service, it seems probable that they will be found to wear well.

For a successful concrete road, hardness, toughness, and uniformity are the most essential qualities. These can be secured to a great extent by care in the selection of the constituent materials and the proportions in which they are mixed. Sample specifications are included in the bulletin, No. 249, "Portland Cement Concrete Pavements for Country Roads." These specifications are believed to typify the best engineering practice, as it has been developed up to this time. They cover such points as materials, grading, sub-grade, and construction.

The cement, it is said, should always conform to some standard specifications for Portland cement, such as those issued by the United States Bureau of Standards or the American Society for Testing Materials. The sand should not contain more than three per cent of foreign material, and sand with more coarse than fine grains is to be preferred. The coarse aggregate may consist of either crushed stone or gravel. In either case it is very desirable that the coarse aggregate be well graded in size between proper limits.

The proportion of cement to the sand and coarse aggregate combined should not be less than about one to five, and the proportion of sand to coarse aggregate not less than one and one-half to three, nor greater than two to three. A useful formula when gravel is used as coarse aggregate is one part of cement to one and one-half parts of sand to three parts of gravel. When crushed stone is used, one and three-fourth parts of sand may be substituted in place of one and one-half parts.

NEW INCORPORATIONS AND VENTURES.

The American Concrete Pipe Co., Portland, Ore.; capital, $125,000; to manufacture concrete pipe; incorporators, A. S. Nichols, A. L. MacLeod and F. D. King.

Huntington Concrete Co., Huntington, W. Va.; capital, $20,000; incorporators, C. N. Davis, D. W. Brown, J. L. Caldwell, Jr., and others.

Peters-Eastman Co., Indianapolis, Ind.; capital, $10,000; to manufacture cement blocks, etc.; incorporators, F. E. Peters and others.

The C. W. Hayward Co., Evansville, Ind., has changed its name to the Star Concrete Co.

STANDARDS FOR RATING BATCH MIXER.

Up to the present time there has never been any standard method of rating batch mixers. Some mixer manufacturers rate their machines by their capacity in mixed concrete, while other manufacturers rate them by their capacity in loose, unmixed material. It is a well known fact that a mixer having a batch capacity of eight to nine cubic feet of unmixed sand, stone and cement will hold only about six cubic feet of mixed concrete per batch. For this reason the term three, four or nine-foot mixer has never had any real, definite significance.

The National Association of Mixer Manufacturers, at their August meeting, took steps toward remedying this difficulty by adopting a resolution providing for the uniform rating of batch mixers. This resolution provides that the members of the association in future catalogues and circulars shall specify the capacity of their mixers as "size of wet, mixed batch," and not otherwise. The resolution further provides that the dry, unmixed capacity of a mixer may be approximated as one and one-half times the wet mixed batch, assuming the use of cement, sand and one and one-half inch crushed stone, with one and three-fourths gallons of water per cubic foot of mixed concrete. The members of the association further agreed not to use the dry batch rating in their correspondence or advertising unless the standard wet batch rating were used also and with equal prominence.

This step is a very desirable one—one that will prove beneficial to all contractors, mixer manufacturers, and everyone, in fact, connected with the concrete and cement industry. A contractor can now arrive at a real comparison between mixers—not only in price but in capacity. This would have been much more difficult without a standard rating.

ESSENTIALS FOR GOOD CONCRETE.

The strength and durability of concrete depend so vitally upon the use of proper materials that the Universal Portland Cement Co.'s exhibit at the recent Chicago Cement Show included a space devoted to a portrayal of the results of using good and bad ingredients. Many contractors are under the impression that a 1:2:4 mixture of clean sand and gravel is the same as a 1:6 mixture using unscreened or bank run gravel. The use of bank run gravel of itself is a sufficiently bad practice, to say nothing of substituting six parts of gravel for the two and four parts of fine and coarse aggregate, as is sometimes done. With materials properly graded, a 1:2:4 mixture should produce a little more than four cubic feet of concrete, as the fine aggregate is supposed to fill the voids in the coarse and the cement is to fill whatever remaining voids there are, whereas, a 1:6 mixture will produce six cubic feet of gravel using the same amount of cement as in a 1:2:4 mixture. The resulting loss of strength is apparent.

The result of proper mixing and curing are well shown by three samples. The first shows a gravel concrete floor action, well cured and mixed, presenting a surface so hard that it can scarcely be scratched. The second shows a poorly cured specimen of granite surface slab which is superior in its aggregate, but faulty in its curing. This is so soft that it can be easily scratched with the heel of a shoe. Good practice is shown in the third section, which was properly cured and made with a good quality of granite aggregate and which is so hard as to be absolutely dustless and not to allow marking with a chisel.

These three examples will make a strong appeal to the architect and engineer, as will also the samples of first class sewer and drain tile made with a mixture wet enough to leave water marks. The common fault in manufacturing cement products is to mix them too dry.

Other cement products include a specimen of faced Hydrostone block, faced Zagelmeyer block and samples of the Onondago Litholite Co.'s stone trim and the Alpha Mosaic Co.'s floor tile in which hard marble is used. These specimens demonstrate the beauty of properly made and finished concrete surfaces for wall, floor and trim.

PIPE PLANTS FOR TEXAS.

H. A. Frankenstein, of Dallas, Tex., and associates have purchased a site in that city upon which they will build a plant for the manufacture of reinforced concrete pipes to cost about $20,000. They will build a duplicate plant in Houston. A new patented process, which was invented by Mr. Frankenstein, will be used in the manufacture of the pipes. A description of the method says:

"Each pipe mould is mounted on an individual truck and run onto a table, vibrating at a high rate of speed. The slush concrete, which is of specially graded material, is then poured into the moulds. The rapid vibration causes the molecules of the concrete to become closer united and thus gives the pipe greater stability. The pipes are also flattened on one side so that they can more firmly hold their position when placed in the ground."

Mr. Frankenstein was formerly employed in concrete construction work in South Africa, where he gave his new process a test, he says.

Concrete Brevities.

The F. S. Burbank Co., L. C. Smith building, Seattle, Wash., reports the sale of a 22-foot Austin cube mixer to the Albein Engineering Co., also of Seattle, to be used on a county road contract between Enumclaw and Buckley, Wash., where a large area of concrete paving is being laid.

The Concrete Flooring Co. of Kentucky is the name of a new corporation which has started business in Cincinnati, with a capital stock of $50,000, and a plant on Baker street, in Norwood. The company will manufacture a composition flooring. There is a company with a similar name in Cleveland, and another in Chicago, and the phrase "of Kentucky" was added to differentiate the local corporation from the other two.

E. C. Stockford of San Leandro, Cal., is arranging to put in a plant for the manufacture of hollow concrete posts and telegraph poles at Marysville, Cal.

The fine residence of W. B. Bourne at Crystal Springs Lake south of San Francisco, one of the finest residences built this year, is to be of reinforced concrete. The cost will be approximately $150,000.

Bids have been called for for the exterior of Benjamin Ide Wheeler Hall at the University of California. Bids will be received on two bases; first, for the complete exterior in granite; and second, for the complete exterior in cement finish on concrete.

The Harbor City Cement Co. of Everett, Wash., reports a considerable demand for sewer pipe, two considerable orders having just been filled for the City of Bellingham. Shipments of concrete pipe for orchard irrigation have recently been made to Wenatche and Tonasket.

About 1,300 cubic yards of concrete will be required for the new grain elevator to be erected by the Port of Astoria, Astoria, Ore. Bids have already been called for.

The contract will soon be awarded for the construction of a 13,000-foot causeway across Aransas Bay to connect the town of Rockport and Lamar, Tex. An issue of $300,000 bonds was recently voted by the taxpayers of Aransas county, the proceeds to be used in paying the cost of the improvement. Part of the proposed structure will be of concrete material.

The Concrete Post Co. of Brantford, Ont., has secured a site at Winnipeg, Man., and will erect a factory.

CONSTRUCTION OF TENNESSEE CONCRETE ROADS.

When the present fiscal year has ended, Hamilton county, Tennessee, of which Chattanooga is the county seat, during the year will have completed, or will have well under way to completion, highway construction costing a total of more than one million dollars. All projects within this total are in the immediate vicinity of Chattanooga, but tend to improve traffic facilities to surrounding towns and farming territory.

Already during the year road work to the extent of $128,000 has been completed and is in use. Work already begun or about to begin aggregates the sum of $896,000. If the Main street bridge is added the total will be increased by at least half a million more.

Concerning the new roads now under construction or about to begin, two will be of concrete. The first of these is the short approach to the Missionary ridge tunnel, being constructed by Superintendent Crox under the direction of the highway commission. The other is being constructed by contract under the supervision of County Engineer Bryan and direction of the Lookout mountain pike commission.

A departure from what the public has been accustomed to in highways will be seen in the Wauhatchie pike, where Engineer Bryan has specified that the crown of the road shall present a curvature of only two and a half inches. That is, the center of the road in place of being some six or eight inches higher than the sides as in chert roads, will be only two and a half inches higher. At the center the concrete will be two and a half inches thicker than on the sides, the roadbed or grade being level.

The county superintendent is pursuing a different method in the work on McCallie. The road, completed, will be 36 feet wide. He will construct first a road 18 feet wide, leaving the remainder to be used for traffic. When this concrete has set sufficiently he will throw it open for use and construct another road 18 feet wide alongside the first one, leaving a completed road of full 36 feet for use. There will be no steel binder or reinforcement in this road. The two edges will be put together without an expansion joint and will be fitted as closely as possible, leaving no space between them. The roadbed will be perfectly level latterally and the concave surface after the concrete has been laid will not exceed an inch and a half. He is, however, considering the question of making the drainage to the center. If this plan is adopted, the surface in place of the familiar concave will be convex, so that the water will run to the middle of the road and be carried off at designated points. It is thought that this method if adopted, will entirely prevent the cracks that appear latterally in some concrete pavements, because the weight of the concrete will be by gravity toward the center and will not tend to pull it apart. A convex street is also an economy in that it saves the expense of gutters on either side.

An argument against the use of what is called expansion joints in concrete streets is found in the statement that nearly all are laid in warm weather, and while they may contract with cold, there is little chance for them to expand with heat. Again, it is said that if the concrete contracts in cold weather, water will enter at the joints and in freezing will force the seams apart. For this reason, it is argued that the surface of any concrete pavement should be as near continuous as is possible and no opportunity afforded for water to enter the joints and by freezing force it apart.

The Columbia Construction Co., which has the contract to build 14 miles of extension for the Metropolitan Street Railway Co., of this city, is getting quotations on cement and crushed stone for this work. They will use very large quantities of both.

ROAD BUILDING

Road Experts in Congress at Cedar Rapids

The Northwest Road Congress closed one of the most successful conventions in the history of the organization on October 7th at Cedar Rapids, Iowa. Fully two thousand representatives from all the middle western states were in attendance, including engineers and road enthusiasts from both private and public life.

Monday's Session.

Governor Clarke formally opened the convention at 2 o'clock October 4th before a good attendance of delegates from nine states. His address pertained to good roads and their value to a community.

Mayor Louis Roth of Cedar Rapids then delivered the address of welcome.

J. P. Keenan, secretary of the congress, delivered the response to Mayor Roth's address of welcome.

Mr. Keenan outlined the work of the organization. He told when and why it was formed; what it had done and what it hoped to accomplish; the good that could be done if the necessary co-operation was to be had; the crying need of good roads; the awakening to the need of them, and closed with a fervent appeal to the delegates that they might carry away with them ideas and resolves that would result in a network of good roads throughout the states represented in the membership of the organization.

"The Value of Good Roads to a Community" was the subject of an address delivered by Bert W. Williams, collector of internal revenue, of Madison, Wis. He made an eloquent, logical plea for good roads.

Tuesday Morning's Session.

W. G. Haskell, county consul, Lincoln Highway Association, presided at the session.

"Developing of a Road System for Western States" was the title of a paper prepared by George W. Cooley, Minnesota state engineer and president of the congress. Mr. J. J. Mullen read the paper, which was very interesting and instructive.

At the conclusion of the paper several questions were asked by interested delegates, and they were answered by Mr. Mullen.

D. W. Norris, Jr., chairman of the Iowa Better Roads committee and editor of the Marshalltown Times-Republican, then read a paper on "Financing Road Improvements."

"The Nation-Wide Good Road Movement—Its Present and Its Future," was the title of a paper prepared by P. St. J. Wilson, deputy director U. S. Department of Public Roads, and read by a substitute owing to the unavoidable absence of Mr. Wilson.

Joe L. Long, editor of the "Road Maker," discussed the subject, "The Proper Distribution of Money in Road Building," which was to have been handled by Mr. Gash, president of the Illinois Highway Commission.

The paper by J. P. Clarkson, "A Man as a Unit of Road Building," was one of the most interesting road thus far before the meeting. It told that to build good roads and maintain them it was absolutely essential that each man perform a certain function and that without co-operation all efforts would prove futile.

"How to Stimulate Interest in Road Building" was a paper read by Joe L. Long, editor of the "Road Maker."

Tuesday Afternoon's Session.

The afternoon session convened at 2 o'clock.

"State Reward: Its Effect in Stimulating Local Activity," was the subject handled by F. F. Rodgers of the Michigan State Highway Commission.

Other papers read at the afternoon session were: "The Highway Engineer: His Present and Future Field," by Dean A. Marston of the Iowa State Highway Commission; "Possibilities of Developing Local Co-operation for Improving National Highway and Cross-State Highway Routes," by Robert C. Carson, organizer of the Red Ball route; "Needed Legislation," by John. A Hazelwood, president Wisconsin State Highway Commission, and "Maintenance," by Prof. L. S. Smith, University of Wisconsin.

Wednesday Morning's Session.

Perhaps the most vital question of good road building—what material is the best to use—furnished the most important subject at Wednesday morning's session.

"Earth Roads—Their Possibilities and Limitations," was the title of a paper read by T. H. McDonald, chief engineer of the Iowa State Highway Commission. Mr. McDonald, a recognized authority on the subject of good road building, handled his subject in a very interesting manner and showed that he had given that particular phase of road building much careful study.

"Gravel Roads," was the title of a paper read by J. J. Mullen, Minnesota state road engineer. This subject, one which is attracting considerable attention at the present time on account of the numerous gravel roads that are being installed throughout the country, was one of the most interesting topics yet brought up for discussion.

Other papers read at the morning session were those of W. K. Tavel, chief engineer, St. Augustine, Fla., on "Brick Roads of Florida," and "Concrete Roads," by H. J. Kuelling, Milwaukee county highway commissioner.

"The Value of a Traffic Census in Determining the Type of Road to be Constructed," was a very interesting paper read by W. W. Marr, Illinois state highway engineer.

"Brick Monolithic Construction of County Highways," by R. L. Belt, Illinois highway commissioner, division engineer, was another instructive and highly enjoyed paper.

Col. Frank Buffum, Missouri Highway commissioner, read a very interesting paper on "Convict Labor on Roads."

The list of new officers elected are as follows:

President—John Hazelwood, Wisconsin, president Wisconsin State Highway commission.

Vice presidents—A. D. Gash, Illinois, president Illinois Highway commission; J. H. Mullen, Minnesota, road engineer, Minnesota Highway commission; F. W. Buffum, Missouri, commissioner of highways in Missouri.

Secretary—Joe L. Long, Illinois Editor Road Maker.

Board of directors—S. A. Bradt, Illinois; T. H. McDonald, Iowa; A. A. Hirst, Wisconsin; T. S. Brown, North Dakota; W. R. Phillips, South Dakota; J. P. Clarkson, Missouri; H. M. Johnson, Michigan; W. B. Neuman, Indiana.

Thursday's Session.

George W. Cooley, presided at the closing day meeting.

Papers were read by the following men:

Clifford Older, bridge engineer, Illinois Highway commission, "Concrete Highway Bridges."

J. H. Ames, bridge engineer, Iowa State Highway commission, "Steel Bridges."

C. C. Nagel, bridge engineer, Minnesota Highway commission, "Reinforced Concrete."

The congress made its final adjournment after the reports of committees, the selecting of next year's meeting place, and other miscellaneous business.

Great Exhibit of Machinery.

Practically every road implement building concern of any consequence in the country was represented in the list of exhibitors who reserved spaces in the auditorium. Samples of road building materials, machinery used in the construction of modern highways and in fact every essential of road building work was displayed in various booths throughout the building. One of the most interesting and comprehensive displays was that of the Universal Portland Cement Company of Chicago. It showed a highway in the course of construction and everything from the giant steam roller and cement making machine down to the laborers working with pick and shovel was represented. This exhibit was in charge of E. A. Sutcliffe.

In the exhibit tent outside the auditorium was seen every machine used in modern road building. These machines were shipped from various cities throughout the country and were in charge of experts who gave demonstrations and offered explanations when they were asked for.

Hoosiers Discuss Road Systems.

The Indiana county commissioners held their annual meeting at the Hotel Severin, in Indianapolis, on Sept. 28, 29 and 30. Nearly every county in the state was represented, either by the commissioners, county engineers or road superintendents, and in some cases all of these officials were in attendance.

They had a very interesting two-days' session, in which they discussed the state-wide interest in the connected road system, which has gained considerable progress in the past few years.

The retiring president of the association, James Kervin, was presented with a handsome memento ring and the following officers for the ensuing year were elected: President, Charles Nelson, Marion, Grant county, Ind.; vice-president, William Reppert, Monroe, Adams county, Ind.; secretary-treasurer, A. F. Zearing, Indianapolis, Marion county, Ind.

The newly elected president was given an ovation by his friends and supporters, who feel that he is a splendid representative of the good road spirit of Indiana. Among the prominent public officials present were:

Ray Seely, engineer Lake county, Crown Point, Ind.

W. W. Showalter, commissioner, Elkhart county, Goshen, Ind.

Fred Rankert, commissioner, St. Joseph county, Mishawaka, Ind.

Henry S. Cox, commissioner, Hendricks county, Clayton, Ind.

(Continued on page 32.)

CEMENT

Work Progressing on Oregon Plant

Building activity has been resumed at the plant of the Oregon Portland Cement Co., located at Oswego, Ore., on the Willimette river, about seven miles from the postoffice at Portland. The construction work has all been done under the direction of Carl Leonardt, of Los Angeles, and is entirely of reinforced concrete construction. One of the accompanying illustrations gives a gengral view of the plant as it stood when work was stopped three years ago. The intention now is to have the plant completed and ready for operation in the early part of the summer of 1916. It will be a wet process mill, using two kinds of limestone for the raw material which has been fully tested and prospected for cement making purposes.

GENERAL VIEW OF PLANT OF OREGON PORTLAND CEMENT CO., NEAR PORTLAND.

Another illustration shows the mammoth group of silos or circular storage bins of an estimated capacity for a 30-days' supply of raw material, the plant to have a capacity of 1,000 barrels per day.

The company, organized under the Nevada law, has the following officers: R. P. Buchart, president, Victoria, B. C.; A. S. Buchart, vice president and general manager; C. Boettcher, Denver, Colo., vice president and director, and Adam Moore, who has been actively connected with the promotion of the company for a number of years is acting as secretary.

The construction and equipment of the plant has been the best obtainable and the properties are said to be ideal for the purpose of manufacturing the very highest grade of Portland cement.

RATES ON CEMENT FROM MARSEILLE.

Since the outbreak of the war, the production and sale of cement in the Marseille, France, district has declined at least 50 per cent, according to Consul General A. Gaulin, at Marseille. Exports have fallen off also in about the same proportion. The total exports of cement from Marseille during the first six months of 1915 amounted to 27,262 metric tons (metric ton=2,204.6 pounds) against 51,572 tons in the corresponding period of the previous year. Prices are five to 10 per cent higher now than they were in July, 1914.

The present freight rates per metric ton on cement in barrels from Marseille to various American and West Indian ports are: To Norfolk, $4.25; New Orleans, $4.25; Habana, $6.75; Fort de France and Ponte a Pitre, $4.83, plus 10 per cent and 25 per cent; Rio Janeiro (wharf), $9.17, plus 10 per cent and 25 per cent; Buenos Aires, $5.79, plus 10 per cent; Colon, Panama, $5.79, plus 25 per cent and 10 per cent.

Except for Norfolk and New Orleans, there is an additional charge for slinging (élingage) of 1 franc per 1,000 kilos ($0.193 per 2,204.6 pounds). The 10 per cent primage on the freight to Buenos Aires is reimbursable to the shippers under certain conditions. Wharf dues and charges for manifest and stamp taxes are not included in the above. It also appears that lower rates could be obtained for large shipments to Norfolk and New Orleans.

Booklet of '83 Republished.

Charles Schmutz, sales manager of the Crescent Portland Cement Co., of Wampum, Pa., has forwarded a copy of an interesting booklet recently issued by the Crescent Company, which is the facsimile of a booklet issued by the pioneer concern which was the forerunner of the present great establishment manufacturing modern Portland cement. The original booklet was issued in 1883 and contains the testimonials of many customers who purchased Shinn Bros. "Centennial" Portland cement with great satisfaction, which was at that time manufactured by the Wampum Cement & Lime Co. The dates of 1878 indicate that the cement was manufactured at that early date in the American activities of the product. On the title page of the ancient booklet are shown both sides of the medal of excellence that was awarded by the Centennial at Philadelphia in 1876. More than half of the booklet is taken up with an explanation of just what Portland cement is, its uses and what it may be expected to do and how it will behave under certain kinds of treatment.

Probably the first recommendation for sidewalks ever to appear in this country was printed in this booklet. It is as follows:

> Foot pavements can also be advantageously constructed from it in lieu of stone or asphalt. When so used, the greatest care is needed in forming the foundations, which must be absolutely unyielding and rigid, if the surface pavement is to be free from cracks. For such foundation a concrete Portland cement answers best.

From this recommendation as a starter approximately half a million miles of Portland cement sidewalks have resulted.

Another fact is commented upon which sounds familiar to all of us:

> Probably less judgment is shown in the use of cement than in almost any other branch of the mechanical arts. The theory that quick setting cements are the best is so general and so deeply rooted that it is difficult to get slow-setting cements introduced. Many persons allow their theories to prejudice their practice in the use of cements. In practice, the slower setting a cement of good quality is the more regular will be the process of hardening and the greater will be the ultimate strength attained. Quick-setting cements soon attain their ultimate strength, and then generally retrograde, sometimes losing the cementing quality entirely.

In explanation of the name, "Centennial" brand the booklet states:

> We have adopted the name of "Centennial" Portland for the reason that the first product of our works was placed on exhibition at the Centennial exhibition, Philadelphia, in May, 1876, and received the medal and certificate of award.

Taken altogether, the booklet is a curio, interesting and instructive in the history of the beginning of the Portland cement industry.

The Atlas Portland Cement Co. has secured deeds for rights-of-way from the Big Four Railroad to its proposed plant at Troy, O. The branch line will run through Bethel township. The plant will cost, it is reported, $1,000,000.

RAW MATERIAL STORAGE INSTALLATION, OREGON PORTLAND CEMENT CO.

Kansas Cement News.

The Western States Portland Cement Co. is now stepping up to its capacity and has orders that will keep it busy for 60 days. Mr. G. E. Pierson, sales manager in charge of the Kansas City branch office, says that if we get a fair average of good conditions, weather and otherwise, between this and the first of the year, 1916 will be a "cracker-jack" year for the business.

The Kansas City cement and crushed stone companies are all looking anxiously toward Tulsa, Okla., where the Missouri Valley Bridge & Iron Co. has a $158,000 contract for a concrete bridge over the Arkansas river. It is said that over 15,000 barrels of cement will be required in this connection. It is likely that freight rate advantages are likely to play an important part in the outcome.

Sunflower Plant in Operation.

The former plant of the United Kansas Portland Cement Co., at Independence, Kan., which was bought at receiver's sale several months ago by the Sunflower Portland Cement Co., began operations on Sept. 18, under its new ownership, after a thorough refitting. The new company has a very flattering booking of new orders, considering the unfavorable season, and feels hopeful of a good year.

F. E. Towne, formerly with the Western States Portland Cement Co., as superintendent, and W. F. Fogue, well-known in cement-selling and buying circles, is the new general sales manager, with headquarters in Kansas City. Mr. Fogue was originally with the United Kansas Portland Cement Co., and later for two years with the Iola Portland Cement Co., and everybody recognizes him as a superior salesman. The Sunflower plant has 10 100-foot kilns, but is not now operating to its full capacity.

HARDY BIG FACTOR IN DIXIE MOVEMENT.

There is probably no other man who deserves more credit for the part he has played in the launching of the Dixie highway movement for a great North and South highway and in perfecting the organization of the Dixie Highway Association to carry on the work, than Richard Hardy, of Chattanooga, president of the Dixie Portland Cement Co., and one of the most active men in the American Association of Portland Cement Manufacturers. Mr. Hardy is a member of the board of directors and of the executive committee of the association which has opened offices in the Hamilton National Bank building of Chattanooga.

Mr. Hardy was drafted into the working organization of the Dixie Highway movement shortly after it was first launched at the Fourth American Road Congress last fall in Atlanta by W. S. Gilbreath of Indianapolis, who is now the field secretary of the association. The Chattanooga Automobile Club, the first organization to realize the importance of the project and something of its immensity, went to Mr. Hardy for help. With the enthusiasm and aggressiveness for which he is known among his fellow workers in the cement industry he commenced gathering in the tangled ends of the project and getting it down to a business and systematic basis.

Realizing that no business could be operated without money, he took the initiative in raising it, and was successful in starting the Dixie Highway Association off on a sound business foundation.

Mr. Hardy's active interest in the Dixie highway is bigger and broader than that of merely benefiting his own company by the sale of cement for concrete roads. He has spent in time, in money for traveling expenses for himself and others, for engineers and miscellaneous expenditures, more than would be justified by the average cement company for missionary work of this character, from which any other cement company will profit as much as his own corporation. He believes in the doctrine of good roads. He believes that this country now needs a through main thoroughfare from Michigan to the extreme points in Florida—first an all-year-round usable and passable highway—eventually a road every foot of which is built for permanence.

When the proposition of a Dixie highway from Chicago and Michigan to Miami, Florida, was brought to his consideration Mr. Hardy canvassed the situation thoroughly before making up his mind that the South as well as the North was ready for the movement. He was convinced that they were.

How well the results already obtained have backed up his judgment is demonstrated by the remarkable enthusiasm and interest measured in actual work now being done and money being spent—not just in one locality, but everywhere along the Dixie highway.

The campaign for the construction of the Dixie highway is being waged by the Dixie Highway Association with all of the energy and resourcefulness at its command. Judge M. M. Allison, a distinguished jurist of Tennessee, is president of the association; C. H. Huston, first vice-president; W. R. Long, secretary and treasurer; W. S. Gilbreath, field secretary, and V. D. L. Robinson, assistant secretary.

Cement Makers Meet at Seashore.

Nearly 200 members of the American Portland Cement Manufacturers' Association, representing most of the concerns manufacturing Portland cement in the United States, met at the Hotel Traymore, in Atlantic City, N. J., during the week of Sept. 13. This gathering was of a two-fold nature, both the social and business sides of the question being at stake.

Matters pertaining to affairs of interest to the cement manufacturing industry in general were thoroughly discussed and reports for the year ending were debated upon. After having disposed of the routine work the visiting exponents of the cement industry took advantage of the many pleasures offered at the seashore resort and enjoyed themselves to the utmost, the majority of them staying at the playground of the East for several days.

ROADS TO USE 200,000 BARRELS OF CEMENT.

Good roads enthusiasts in the state of Washington are pointing with pride to the fact that the state will use 200,000 barrels of Portland cement for public improvements during the next 20 months. This is said to be the largest single order for cement ever offered in the Northwest. The quantity will be ordered in a lump and divided as follows: Seattle, 30,000 barrels; Tacoma, 20,000; Pierce county, 24,000; King county, 81,000; Seattle Port district, 30,000; Intercounty and river improvement district, 15,000.

PHILIPPINE CEMENT PLANT IN OPERATION.

Information has been received from Manila that the first shipment of cement from the plant of the Rizal Cement Co., at Binangonan, province of Rizal, has been received by a local firm. The works have been under construction for some time, but were completed only a few weeks ago. They have a capacity of 500 barrels a day. Tests of the product, both in the Philippine Islands and abroad, have been very satisfactory, proving it equal to the best imported cement.

CEMENT FIRM INCORPORATES IN NEVADA.

The Oregon Portland Cement Co., of Carson City, has been incorporated at Carson, Nev., with an authorized capital stock of $2,000,000, by C. H. Peters, L. S. Ellis, William Muller, A. Moore and P. B. Ellis.

IOLA COMPANY MASTERS FLOODS.

The Iola Portland Cement Co. has just successfully passed through a rather difficult situation. On Sept. 6, Iola, Kan., had a cloudburst and 40 feet of water in an adjoining creek backed over into the company's quarry and filled 50 acres to the same depth. The company put in pumps and drew out 400,000,000 gallons, when, on the 14th, another big rain, amounting to five inches, happened along and partly filled it up again. By energetic action, the company got the quarries in shape for use and got the plant to running again on the 23rd.

CANADA CEMENT MARKET GOOD.

In connection with the cement market, Frank P. Jones, manager of the Canada Cement Co., states that while there have been no large orders recently, things are very much better in general run of Canadian business than he anticipated under the general conditions prevailing.

CALLS ATTENTION TO CONCRETE TRENCHES.

In an article in the London Daily Mail of June 16 and reprinted in a recent issue of the Chicago Tribune, Alfred Harmsworth, Lord Northcliffe, owner and publisher of the London Times, Daily Mail and numerous other journals of vast circulation, calls the attention of Britishers to the machine gun and the fearful damage it has given the Germans. In enumerating the many progressive features of the Teutonic forces, the use of concrete in the trenches is given prominence.

NEW INCORPORATIONS.

Erie Porch Box Co., Portland, N. Y.; cement, concrete products, vases, jardinieres; capital, $50,000; Henry H. Boyle, Francis C. Bertram, Portland.

Chicago Concrete Post Co., Chicago; capital, $5,000; manufacture and sell merchandise cement, concrete, re-enforced concrete, etc.; incorporators, Louis A. Heile, Richard C. D'Aueromont and Charles W. Lambert.

The American Concrete Pipe Co., Portland, Ore.; capital, $125,000; incorporators, A. S. Nichols, A. L. MacLeod and F. D. King.

The California Veneer Concrete Co. has been incorporated at San Francisco, Cal.

Monolithic Concrete Foundation Co., Brooklyn, N. Y.; capital, $45,000; to manufacture concrete blocks; directors, Louis H. K. Brodie, 50 Ft. Greene place; Benjamin E. Devoy, Jr., 486 Chauncey street, Charles Byrne, 382 Chauncey street.

The Calumet Cast Stone Co., Indiana Harbor, Ind.; officers, A. L. Wiltfong, president; J. F. Bickell, secretary and treasurer; H. E. Shepherd, assistant secretary and treasurer, and Thomas Redding, general manager and superintendent.

The Ideal Concrete Machinery Co., South Bend, Ind., reduced its capital stock $151,500, from $500,000 to $348,500.

Robert Clifford, of East Rochester, O., and W. H. Clifford, of Martins Ferry, O., have leased the big sand bank on the Bilbert farm of 100 acres in Fairfield township, near Leetonia, O., which has been operated for several years by the Standard Sand & Concrete Co. The new firm will at once begin to manufacture concrete building blocks and is now putting up suitable buildings and installing modern machinery. About 75 acres of the farm consists of sand banks 60 feet deep to the water line.

Concrete tiling made by Alfred N. Sherman, of Athens, Tenn., will be used in the rebuilding of the Knox County, Tenn., roads. At the meeting of the Good Roads Commission of Knox County, the tiling made by Mr. Sherman was selected, and he was ordered to make shipment as the engineers directed.

LIME

Ancient Masonry Mortars and Plasters

With all of the research that has been made in modern times directed to the purpose of improving masonry mortar, etc., it is often stated that ancient builders know just about as much about mortar mixing and the manufacture of materials for such purposes as is known today.

In a recent number of a Dutch technical journal there was an interesting article discussing this subject, which makes very pleasant and instructive reading, for it has the atmospheric touch of a well written story and at the same time shows very careful investigation with well taken conclusions as to the operations of ancient mortar makers. There may well be some suggestions useful to the student in the present age.

About the time of the Roman Emperor, Constantine I, a beautiful hunting lodge was built near Kallburg in the Eifel mountains. Many visitors still admire the ruins of this once beautiful castle. It formerly belonged to a Roman of the suite of the Emperor, who lived at Trier, called by the Romans Augusta Treviorum, on the old Roman road leading to Colona Agrippina, the modern city of Cologne on the Rhine.

Judging from the ruins, the building must have been a magnificent one. It had two fronts, one facing the mountains and the other the valley, 206 and 219 feet long, respectively. The building was surrounded by a beautiful and extensive garden and there were many suites of rooms. The splendid terrazzo floor of the atrium or drawing room is perfectly preserved in all of its original splendor. It was built upon little tile pillars and was heated from below by means of a heating plant located beneath the floor, so that the heat currents could be driven beneath the tile, which gradually became warm through and so heated the upper surface. Wood was probably used for fuel, because nowhere have soot marks been discovered. The flues were built of ordinary limestone rubble, and beneath all of the floors of the building were tubes or conduits built of the same materials laid in turns and winds, so as to contribute the heat.

In the corners of the living rooms heating tanks, constructed of clay tile, were built into the walls and connected with the conductor system just mentioned. This is without a doubt the oldest installation of a hot air heating system of which there is any definite record, and it was entirely of masonry construction.

With great care and wonderful artistic effect, several groups of animals are represented in the terrazzo floor. One of these represents a lion pursuing a fleeing horse. Another shows a tiger after a mountain goat, and there are numerous smaller groups representing two playing squirrels, an owl and a stork with a snake in its bill.

Many Roman tools, arms, coins, sculptures, pillars made of white and yellow sandstone, many beautiful tiles, a ramshead of burned clay, numerous pieces of green glass, etc., have been dug up and are on exhibition on the premises. The elaborate bath rooms are still in excellent condition. Each bath room had its own separate roof, and they seemed to have been so constructed and equipped that the heat increased from the first one, without any heat all all until at the fourth it reached its height at somewhere near the boiling point. Still in good condition also are a small sitting bath with a brass escape pipe let into the floor and a large swimming tank also provided with brass waste pipes and marble steps for entering and leaving the tank.

It is specially to be noted that the Roman artisans, when constructing this building, did not use one kind of mortar for all its different parts, for the mortars are of various composition, each adapted to the purpose for which it was employed.

In the well-known laboratories of Drs. Seger & Cramer, in Berlin, samples of the mortar taken from this castle have been carefully tested. The analysis of a sample of mortar from one of the front walls has a greyish white and slightly red color and from its appearance seemed to have been composed of lime, sand and brick dust. The following analysis resulted:

Water of combination	15.21%
Insoluble in HCl	62.77%
Silicic acid	4.95%
Silicate of alumina	3.22%
Ferric oxide	.38%
Lime	12.18%
Magnesia	1.38%

From this analysis it is concluded that good lime mortar was used, consisting of one part of Trier hydraulic lime and 2½ to 3 parts of sand. Very probably the lime was burned from the dolomite rock, which is found along the road near Trier and which belongs to the shell-lime classification. The Romans evidently tried to improve the weak hydraulic characteristic of the lime burned from this stone by adding some finely pulverized brick-dust to it.

A sample of the plaster taken from one of the inner walls, which had a roat of Pompeiic red, and a grey color and did not show any addition of brick-dust. The following analysis seems to prove this assertion:

Water of combination	11.66%
Insoluble IN.HCl (sand)	73.10%
Silicic acid.	1.37%
Silicate of alumina	1.05%
Ferric oxide	1.22%
Lime	9.60%
Magnesia	2.11%

A sample of the mortar in which the mosaic is laid has a light grey appearance and showed under the magnifying glass only a very small addition of brick-dust. It may be safely accepted that the mosaic was laid in almost pure lime paste, to which no sand, but probably some brick-dust, was added.

Another mortar sample was taken from the heating tubes and consisted principally of lime and brick-dust, with little or possibly no sand. In some places transparent encrustations were visible in this mortar on examination, and when spotted with hydrochloric acid, effervesced violently, showing that it was composed of carbonate of lime. This mortar analyzed as follows:

Water of combination	33.55%
Insoluble in HCl (sand)	36.20%
Silicic acid	2.20%
Silicate of alumina	.40%
Ferric oxide	.40%
Lime	18.40%
Magnesia	9.60%

This indicates that for the construction of these tubes an extraordinarily fat mortar was used. It contained at most two parts of sand to one part of hydraulic lime. The lime percentage being so high indeed that in the course of time, under the influence of heat, air and moisture it has crystallized partially to Arregonite and calcerous spar.

A mortar sample taken from the baking establishment was tested. The oven apparently consisted of a sort of lime, tile shingles and concrete, having a mixing percentage of 1 to 1. The tile shingles were visible in a reddish white mass.

The Roman practice of using lime paste as a base material and then making additions of finely pulverized calcined clay to impart the hydraulic characteristic has been called the Roman cement system. Either the architect or some expert artisan had to be the master of the situation in preparing the mortars. While the science of chemistry is little more than 100 years old, it is certain that the Romans had some means of measuring the exact quality that could be expected to develop from a given sample of lime plaster, so that the addition of the aluminous ingredient could be properly gauged to secure a definite result.

A study of the mortars used at Rouen, in France, where the lime was secured from the burning of Caen stone, which is entirely different from the lime rock found at Trier, showed almost parallel results both physically and chemically.

The limes used in such ancient masonry work as Thrieve Castle, in Scotland, and in the construction of the wall of Hadrian, in the same locality, were taken from an entirely different type of limerock found close to the work, along the border between England anud Scotland. It was prepared in much the same manner as described in this article.

The methods will probably never be known that were used by the Romans in arriving at the definite composition and character of the many various lime pastes that they used for the principal ingredient of their mortars in different localities. The remarkable feature of the study is that everywhere Roman engineers or constructors, or architects, or masons, or by whatever name they were known, invariably obtained the same result of a very high grade and uniform mortar—no matter how much their initial materials might vary.

It is certain that they had plenty of knowledge with which to deliver the goods, for there are literally acres of delicately tinted lime plasters laid on stone walls 1,500 years ago that have not cracked, checked or pitted or disintegrated in any way except by the violent attack of man with his instruments of destruction or his tools of demolition.

MAGNESIUM LIME AS A FERTILIZER.

Mr. Willstatter, of Leipzic, in a recent booklet on the subject of fertilizers and soil preparations, states that combinations of magnesia constitute an important part in the life of plants. Investigation has shown that the use of magnesium lime in many experiments in the Western part of Prussia have given very satisfactory results. Where potash salt is used as a fertilizer the chloride of magnesia is brought into the soil, which in such a combination is not soluble, and again, the quantity of chloride is too great for many plants. In cases where it is found that soils need magnesia, magnesia lime is the best fertilizer to use in supplying the ingredient for the lime will eagerly absorb the chloride.

DEATH OF LOWELL M. PALMER.

One of the pioneers of big business in this country, a man respected, admired and looked up to in many lines of commercial activity, has passed way. Lowell M. Palmer, of Brooklyn, N. Y., died at his summer home at Stamford, Conn., on Sept. 29, of heart disease. Mr. Palmer is best known to our readers in connection with his extensive lime interests at York, Pa., and elsewhere which he established a number of years ago.

He was 70 years of age at the time of his death. Was an active member of the Loyal Legion with a record of having served through the entire four years of the Civil War. He was a member of the Presbyterian church and an art connoisseur of international reputation, having one of the finest private art collections in the world. He was the founder of the Palmer docks, the first to put up elevated coal pockets upon the Brooklyn waterfront, founder of the Brooklyn Cooperage Co., founder of the Palmer Lime & Cement Co., a director of the American Sugar Refining Co., and head of a large wholesale drug concern besides identification with many other important business and industrial interests.

Mr. Palmer retired from all these business activities in 1904, retaining his place as director in many of the corporations from which in later years he gradually withdrew.

He was born in Chester, Ohio, where he grew to manhood, enlisting with the Ohio troops and at the age of 17 commanding a battery of artillery. He came to Brooklyn immediately after the war, first engaging in mercantile pursuits, and built his very large fortune by the promotion of extensive and successful business enterprises. A lover of art and music, he was one of the earliest supporters for the erection of the Academy of Music. In all his business career he has been identified with philanthropic and charitable work in many capacities.

Mr. Palmer is survived by his wife, formerly Miss Grace Humphrey Foote; two sons, Lowell M., Jr., and Carleton H., and four daughters, Florence Edith, the wife of Theodore Wiecker; Grace M., the wife of F. Cliffe Johnston; Lillie C., the wife of J. Gibson McIlvain, and Miss Ethel Josephine Palmer.

HYDRATED LIME BUREAU MEETING.

The Hydrated Lime Bureau of the National Lime Manufacturers' Association will hold its annual meeting in the assembly room of the Oliver building at Pittsburgh, Pa., on Wednesday, Dec. 1, according to present arrangements. There is a reservation to the effect that the date may be changed a few days one way or the other, but in the absence of a correction this date will stand.

A great deal of good work has been done by the bureau in the past year and a full attendance of the members of the hydrating contingent is expected. Plans will be mapped out for the campaign for the coming season and a full open discussion of the possibilities of greater development in the distribution and sale of hydrated lime will be encouraged from the men who know the most about it. While the program has not been definitely decided as yet, this meeting is certain to prove one of greatest interest and profit to those who desire to bring about the greatest promotion that is possible to attain.

Stone Income Nearly Eighty Million Dollars

The value of the production of stone in the United States in 1914 reached the great total of $77,412,292, according to a statement of G. F. Loughlin just made public by the United States Geological Survey—a greater production than in any year prior to 1912, though it was slightly less than the output of that year and about seven per cent less than that in 1913. Some classes of stone, however, showed an increase in 1914, notably marble and sandstone, the value of which increased over half a million dollars. Of the 47 stone-producing states, 14 showed an increased production last year.

The value of the granite produced in 1914 was $20,028,919, against $20,733,217 in 1913. The value of "trap rock" was $7,865,998 in 1914, against $9,134,494 in 1913, that of marble was $8,121,412 in 1914, against $7,870,890 in 1913, and that of common limestone was $33,894,155 in 1914, against $38,745,429 in 1913. Sandstone was $7,501,808 in 1914, against $7,244,965 in 1913.

A tabulation of the value of stone produced for different uses in 1913 and 1914 affords interesting comparisons.

Building stone decreased in value from $18,097,219 in 1913, to $17,796,552 in 1914, showing a loss of only $300,667, or of about one and one-half per cent. The decrease in 1913 as compared with 1912 was much greater, namely, over four per cent. Marble showed an increase in production for building purposes in 1914.

Monumental stone decreased in value from $7,212,648 in $7,047,572, a loss of $165,076, or about two per cent. Granite for monumental stone made a small increase, but marble decreased. The total value of monumental stone in 1914 showed over four per cent increase as compared with 1912.

Paving stone decreased in value from $3,936,448 in 1913 to $3,772,383 in 1914, a loss of $164,065. Granite showed an increase. Trap rock and limestone decreased.

Curbstone decreased in value from $2,077,919 in 1913 to $1,869,676 in 1914, a loss of $208,243. Limestone for this use increased and granite and sandstone decreased.

Flagstone decreased in value from $573,638 in 1913 to $540,940 in 1914, a loss of $32,698. There was a small increase in the value of granite for flagging, but the value of sandstone, which included that of bluestone and which formed over 96 per cent of the total value of flagstone, showed a decrease of $33,172. Limestone for flagging also decreased. The use of concrete for flagging in recent years has been the principal cause of the decrease in the production of flagstone.

Stone for rubble showed a decrease in value from $1,588,714 in 1913 to $1,256,213 in 1914. Basalt (trap rock) for use as rubble increased in value but the other kinds of stone decreased.

Stone for rip rap also showed a large decrease in value, falling from $4,204,857 in 1913 to $3,707,342 in 1914, a loss of $497,515. The value of trap rock for this use increased also, and that of limestone made a small gain, while that of granite and sandstone decreased.

Crushed stone, which is the largest product common to more than one kind of stone, decreased in value from $31,677,871 in 1913 to $30,161,766 in 1914, a loss of $1,516,105 or nearly five per cent. The value in 1914, however, was greater by $1,569,230, or about five and one-half per cent, than that of 1912. Granite and sandstone in 1914 made small gains in value, but trap rock and limestone each decreased.

Pennsylvania has always held first rank among the stone-producing states—except in the year 1908, when Vermont reported the largest production—and in 1914 it produced more than 10 per cent of the total of the entire United States. Vermont was second, with over eight per cent. Other large stone-producing states, named in order of output, were New York, Ohio, California, Indiana, Massachusetts, Illinois, Wisconsin, Missouri, Georgia, and Virginia, each of which produced stone valued at more than $2,000,000. In 1913 the leading states were Pennsylvania, Vermont, New York, Ohio, Indiana, Illinois, California, Massachusetts, Missouri, Wisconsin, Georgia, and Tennessee. In 1914 California rose from seventh to fifth place, supplanting Indiana and Illinois; Massachusetts rose from eighth to seventh, also supplanting Illinois; and Wisconsin rose from tenth to ninth, supplanting Missouri. Virginia, however, made the greatest gain, rising from twenty-fifth to twelfth, and being credited for the first time with a production value of more than $2,000,000. Tennessee, which ranked with the above states in 1913, fell below the $2,000,000 mark in 1914, and dropped from twelfth to thirteenth place. Thirteen states in both 1913 and 1914 produced stone valued at between $1,000,000 and $2,000,000.

Lighting Black Powder Time Fuse.

The following method of lighting a single black powder time fuse is suggested by the United States Bureau of Mines as being more efficient than the old method of splitting the end of the fuse. The method is adapted for use when only one piece is to be lighted; it is not applicable when several pieces are to be lighted, as the time interval between ignition would be too long.

A safety match is held against the powder core at the end of the fuse and the match box drawn across the match, causing the match and powder core to inflame immediately. It will be noted that this is just the reverse of the usual way of lighting a match—drawing the match across the box.

In case safety matches are not at hand, the ordinary household match can be used by placing one match against the powder core and then lighting another and quickly touching it to the first one.

It is believed that the method outlined, which originated with W. C. Cope, of the explosives chemical laboratory of the bureau in Pittsburgh, as the result of experience obtained in the igniting of hundreds of pieces of black-powder fuse, will be helpful in quarrying and other outside work. It has the advantage of cheapness, as no fuse lighters are required.

PITTSBURGH REPORTS "FEAST OR FAMINE."

Pittsburgh, Oct. 4.—The stone business in this district the past summer has been either a feast or a famine. Some concerns have had all they can do. Other firms have found it very hard picking. In general those firms which were in on the county and city road work have been very busy. Building operations which demand quarried stone have not been as numerous as usual, and business has fallen off on this account all through the Pittsburgh district. There has been quite a quantity of stone sold for Government work, chiefly on the rivers. Prices have been very close.

T. K. Morris, from his headquarters in the Empire building, says he has had a very good year in the stone business. He has had quite an amount of city road work, and also had the contract for all the stone used in connection with the rebuilding of Grant boulevard in Pittsburgh. He has been shipping limestone screenings mostly for this work, although he has also furnished quite a large amount of binders' stone and "buckwheat" stone. His quarry at West Winfield, Butler county, Pa., is working full, and he reports that most quarries in that section are busy because of the great activity among the furnaces in the Pittsburgh district, which are taking large amounts of limestone this fall.

The Haddington Quarries & Construction Co., Ltd., Vancouver, B. C., capital $300,000; to carry on the business of shipbuilding, iron founding and machinery manufacture, etc.

With the QUARRIES

Organization and Work of the New York State Department of Highways*

BY GEO. A. RICKER,
First Deputy Commissioner, New York State Highway Commission.

As a preface to the description of our present organization I will give a brief sketch of the development of highway work in the State of New York.

The Higby-Armstrong Act, passed in 1898, appropriated fifty thousand dollars for the construction of highways and four roads in widely separated parts of the State were built with that sum; to which the counties contributed an additional 35 per cent and the towns 15 per cent. No provision was made for maintenance and the statute required that after completion the maintenance charges should be paid by the towns. In succeeding years, further and larger appropriations were made by the Legislatures for the construction of new roads. From 1898 to 1905, there was appropriated from the general fund about three and one-quarter millions and this fund was expended under the direction of the State engineer.

In 1906 the State voted favorably upon a proposition to issue bonds for fifty million dollars for a more extensive system of roads; eleven million of this bond issue was expended by the State Engineer and in 1909 there was organized the first Highway Commission, under Governor Hughes. This Commission consisted of three members, two of the majority and one of the minority party, and one member was an engineer. In 1911, 'the Hughes' Commission was succeeded by another of a different composition, due to a change in the Highway Law. Governor Dix appointed a Superintendent of Highways and associated with the Superintendent the State Engineer and the Superintendent of Public Works, to form the Highway Commission.

In 1913 the law was again amended providing for a single Commissioner with three Deputies, the first to be a civil engineer and to receive a slightly larger salary than the others, evidently intending that he should be in effect the Chief Engineer of the Department. Under this, the present organization, the balance of the first fifty million dollar bond issue has been expended or obligated, excepting about three million dollars set aside for expedited routes not as yet under contract.

In 1912 a second bond issue of fifty million dollars had been approved by the voters of the State and in 1913, the first five million dollars was appropriated by the Legislature, and in 1914 ten million was released. Contracts let in the past year and a half have obligated ten million dollars of this sum and contracts let since the first of October of this year, and to be let this winter, will exhaust the other five million dollars.

"The first issue of bonds authorized by the constitutional amendment was originally intended for the improvement of a system of county highways aggregating about eighty-three hundred miles in length, and would, with the moneys derived from the counties as their share of the cost, have been sufficient for that purpose. Afterward, however, to this mileage, was added a system of State routes, aggregating about three thousand miles, the entire cost of which was to be borne by the State, and consequently the fifty million dollars was inadequate for the completion of either system as the money had to be divided between the county and State construction. When the first bond issue was authorized it was apparent that some systematic method should be provided for an equitable apportionment among the counties of the State, and the amendment to the constitution authorizing the bond issue, so directed. On account of the appropriations, however, which have been made for what are termed 'expedited routes' and the exigencies of construction, which have arisen in certain counties, some counties of the State have received more than their equitable apportionment and it is the intention and endeavor of the present Commission to correct this, as far as possible, with the funds remaining to be expended."

The second referendum, authorizing the raising of another fifty million dollars for highway purposes, provides absolutely for an equitable distribution of this fund among the counties of the State. This distribution is made first on the basis of twenty million dollars for the construction and improvement of State Highways, and thirty million dollars for the construction and improvement of county highways; these two funds to be subdivided among the counties of the State, based on the percentage of population, mileage and area that each county bears to the total population, mileage and area of the State.

The organization of the Department at this time, consists of a single Commissioner with three Deputies. The First Deputy, to use the language of the Law, "shall be a practical civil engineer, and his duties shall relate to the plans, specifications and execution of all contracts pertaining to State and County Highways." The Second Deputy's duties, again quoting from the Law, "shall relate to the maintenance of State and County Highways." The Third Deputy's duties "shall relate to the repair, improvement and maintenance of town highways and bridges, and county roads and roads and bridges on the Indian Reservations."

While the law does not require that the Second Deputy shall be a civil engineer, the Commissioner has appointed to this position an engineer experienced in the construction and maintenance of pavements who has had a valuable experience as City Engineer of two important municipalities of the State. The present Third Deputy was for many years County Superintendent of Highways of one of the largest counties of the State and he presides over the Bureau of Town Highways and cares for nearly seventy thousand miles of earth and stone roads that form the great network of minor highways connecting the rural districts with the main thoroughfares.

The law of 1913 provided for the partition of the State into nine divisions where six formerly existed. Each division is now presided over by a Division Engineer selected by civil service examination. The plan of securing the Division Engineers by civil service examination was instituted by the present Commissioner and a few words regarding this important innovation may not be amiss. Not only must these men be competent engineers experienced in road building, but they are also executives with important and varied duties.

Each Division includes at the present time from five to six hundred miles of improved highways and each year there is built in each division approximately one hundred miles of new roads. The building of new roads has always been under the Division Engineers and for several years past plans and specifications have been prepared in the division offices subject to the approval of the Commission. By the law of 1913 the Maintenance Bureau was first established and the repair, maintenance and reconstruction is now carried on by the Division Engineers. Upon all matters relating to construction they report to the First Deputy; in repairs and maintenance they report to the Second Deputy. Minor repairs are made by patrolmen and gangs of men working under the supervision of the Division Engineers. Larger work is let by contract under suitable plans and specifications. The organization of the Maintenance Bureau marks a long step in the advance of highway work. Before the present law went into effect there was no adequate provision for the care of the improved roads and many of the difficulties experienced and most of the scandals which developed were due to the political domination of this phase of the work.

In order to secure, through the civil service, men with technical qualifications and executive ability, a special form of examination was devised and by agreement with the State Civil Service Commission two members of our Board of Consulting Engineers and the First Deputy sat with the Civil Service Commissioners in the conduct of an oral test to develop the personality of the applicants. The second section of the examination included original essays on the "Essentials of Highway Construction" and theses on any other large work in which the candidate had been engaged. Unless the applicant made a sufficiently good impression upon the six members of the examining board as a result of the oral test to deserve a mark of 60 per cent, he was not permitted to continue in the examination. His final rating was fixed by the average of the marks given for personality, technical knowledge and experience. A list was secured from which we were able to select the first six men for the vacant offices. The appointment of these men was made solely as the result of this examination and without regard to any affiliations socially, religiously or politically, and to this day—more than a year after—I do not know the political affiliations of our nine division heads.

The divisions each contain from four to seven counties. In each county there is an assistant engineer in charge of all work in that county who reports to the Division Engineer. Each county assistant is required to live in the county and, if he makes good, he will be continued in his position so that long residence will make him familiar with his territory. Assistant engineers in charge of individual contracts report to county assistants and a comprehensive system of reports has been adopted.

There are now completed in the State upwards of five thousand miles of paved roads of various types. A well known newspaper correspondent has attracted much attention to New York State by his graphic statement that its mileage of improved roads is sufficient to provide a continuous road across the United States from the Atlantic to the Pacific and another from the Canadian boundary to Florida with enough left over to supply one or two smaller states with completed systems. The extent and importance of highway work in this State is scarcely appreciated or understood. One hundred millions of dollars for roads has not appealed to the imagination as has an equal amount invested in a canal. In road work this vast sum is spread out over the entire area of the State. Every one of the fifty-seven counties, outside of the greater city, receives its due share. The contracts are in small units and considered individually do not seem to amount to much. Three or four hundred highway contracts may be completely unnoticed by the whole people, although of vital interest to each locality. Work on the Barge Canal is concentrated in a single line from the Hudson River to Lake Erie with a few branches or feeders. The Highway Law describes nearly fifty routes for State Highways that shall be built entirely by the State without local contribution. Many hundreds of County Highways have been or are to be built in all counties on lines indicated by the local authorities.

Administration of work of this character is necessarily crowded with infinite detail. The organization must reach out to the farthest corner of the farthest county and it must be so effective in its workings and responsive in its character that equal attention is secured to the smallest contract as to the largest.

We have in round numbers twenty-three hundred and twenty miles of waterbound macadam roads; thirteen hundred and forty miles of bituminous pavements, of which fifteen are sheet asphalt; one hundred and sixty-five miles of block pavements, of which one hundred and fifty are brick. There are approximately four hundred and fifty miles of concrete roads completed or under contract. Of these twenty-two miles are Hassam pavements; two hundred and twenty-two are second class concrete roads built prior to 1914 and two hundred and six miles are first class concrete roads under our new specifications. Of the large mileage of second class concrete highways and part of the Hassam pavements, nearly all are provided with some form of thin bituminous cover.

With the establishment of a well-equipped laboratory, the Department applied "infinite care to the testing and inspecting of materials," and with the development of our new organization a system of complete and trustworthy inspection was secured that did insure the highest grade of workmanship, and study of well built concrete roads in other states convinced me of the error of my ways. With the aid of a new specification and in the light of more complete knowledge, I was led to a reversal of my former attitude.

During the year, now closing, many miles of excellent concrete roads have been built in New York State. Many more are in course of construction and

*Paper read before the Association of American Portland Cement Manufacturers, New York City, December 10, 1914.

a considerable mileage is proposed for construction another year.

If the first class concrete roads which we have built come through the test of the winter that is upon us without deterioration by reason of its severity, my conversion will have been completed. Assuming that they will survive the expected punishment I shall have reached the conclusion that in the construction of cement bound roads, the problem will have been solved of building permanent roadways at moderate cost. Wherever suitable local materials are available or wherever the right kind of materials can be economically assembled, I will surely favor the building of such roads wherever practicable.

The art of forming concrete pavements at this time is lacking in a proper understanding of methods and machinery for producing a durable and agreeable surface. Just now the most acceptable method in use is that of brooming, but this is at best a temporary device and there is great need for improvement in tools that will produce a perfect crown and surface. Brooming results in the forming of a myriad of small, sharp ridges that assist in giving traction and help to make the top less slippery. Brooming tends to disguise the slight depressions in surface which are unavoidable, improves top drainage and breaks the skin coat of flush cement that will otherwise show small hair cracks. We are ready to avail ourselves at once of the inventive genius of some man who will produce a machine that will in one operation accomplish all of these desirable features.

The day of the macadam road has not passed. While upon main thoroughfares subjected to heavy traffic, concrete or block pavements are necessary and more economical to maintain, there are still many highways where traffic conditions justify the use of waterbound or bituminous macadams. There are many sections where hard stone or good sand or both are not locally available and cannot be economically assembled, where macadam roads should be built.

The need for highways that may be improved at small cost, what are termed "market roads" to connect farming sections with trunk lines, is a growing need and there is no doubt that in order to improve such minor roads intelligent specifications must be prepared making use of even inferior available local materials. Perhaps the most difficult problem of the road building engineer is found in such localities. Iron furnace slag, considerably lighter to transport than stone, is being tried. Some of these slag roads, built as waterbound macadams, promise well, others are bound with bituminous material and we are hopeful of their permanence. In some instances slag has been used for concrete base with a wearing surface of local stone and bituminous binder.

Macadam roads, built in the earlier years of highway improvement in this State, have deteriorated because of the absence of any system of maintenance. These are far from being a total loss since the substructures, grading and drainage are intact and in many cases the foundations of pavements are good. A moderate expenditure for new tops will fully restore these roads. There is no good reason why, with proper maintenance, waterbound macadam roads cannot be successfully maintained under moderate traffic at reasonable cost. The effort of the past few years to construct bituminous macadam roads within the average price formerly paid for waterbound macadam has resulted in securing probably the least serviceable of all roads. To offset the additional cost of the bituminous binder, necessary foundation courses were omitted and although pavements that looked very well at first were obtained, they generally failed for lack of proper foundation. Much has been said and written of the need of suitable drainage; suitable foundations are equally necessary.

Within a few years the completion of the main thoroughfares and county highways contemplated in the original plan will have been accomplished. Of course, it is possible, even probable, that further bond issues will be authorized that will provide for the construction of a greater mileage, but at this time the serious problem confronting the Department is the maintenance of improved roads, and maintenance means for us reconstruction of the defective macadams. A history of our roads now being compiled, seems to indicate that maintenance costs have been smaller than we had supposed. From our experts engaged in the preparation of this record, we learn that the average cost per mile for maintenance of all waterbound macadam roads up to the year 1913 was slightly over six hundred dollars, and this figure includes the reconstruction of many pavements.

With deeper and heavier foundations used in the construction of macadam roads under present specifications, with a larger percentage of bituminous binder prescribed, with the better methods of workmanship and stricter inspection, the cost of repairs to macadam roads should be greatly decreased. With a constantly increasing mileage of block pavements and concrete roads, a still greater saving will be effected. Coincidental with the construction of more permanent roads, however, comes the need for protection against abuses by new and destructive classes of vehicles. Scarcely a day passes without notice from the Public Service Commission of the application of individuals and corporations who desire to operate motor-bus lines for both passengers and freight over improved highways. There is a constantly increasing commercial use of the roads calling for the employment of heavy tractors which in many instances draw trains of loaded cars.

While under the present Highway Law the Commissioner is authorized to make rules for the protection of roads, no authority is given him to enforce these rules or to apprehend and punish violations. At present such authority is vested in local officials and for obvious reasons the rules are not enforced. There is urgent need for such amendment to the Highway Law as will give the Commission authority to enforce regulations, and urgent need also for an equitable application of the licensing function that will secure from commercial users of highways adequate returns commensurate with the use and abuse of pavements.

I cannot close without a brief reference to the system of inspection that has been established during the past year which has helped to secure greater efficiency in all construction and has kept the Commission in close touch with the progress of work. A corps of seven engineers, known as Headquarters Inspectors, have devoted their time continuously to the observation of all contracts. Each Headquarters Inspector has so planned his routes that he has personally viewed every road in his section two or three times each month. His reports are mailed directly to headquarters and every morning I find several of these on my desk. You will recall my quoting from the Highway Law a statement of the duties of the First Deputy. The Headquarters Inspectors really represent me on the work and their reports, after being checked over, are placed on the desk of the Commissioner who in this manner is also in close touch with construction at all points in the State.

Headquarters Inspectors do not give any orders; they merely report what they see. If advice is asked for, they give it, but their function is not regarded as critical, neither are they intended for detective duty. They are eyes for the Commission through which we may observe and learn of the activities of the Department as shown in the execution of contracts. If adverse reports are made the substance of the communication is conveyed to the Division Engineer in a letter, and his attention directed to the deficiency, whatever it may be.

From this hasty review of the activities of our Department, you will obtain some idea of the beginnings of highway improvement in New York State and of the organization and work of the Department as at present constituted under the administration of Commissioner Carlisle.

Quarry News in Brief.

The tipple of the Pittsburgh Limestone Co. at Carlin, Blair Co., Pa., was dynamited Sept. 20. The limestone from these quarries is shipped to Pittsburgh steel mills which are making war munitions and it is supposed that the dynamiting was done by an enemy of the allies.

F. M. Talbot & Co., Walden, N. Y.; contracting, quarrying, etc.; incorporators, F. M. Talbot, 311 West Ninety-fourth street, New York City, and others.

Following the arrest of an Austrian it was recently discovered that an attempt had been made to dynamite the boiler house and tipple of the Pittsburgh Limestone Co.'s quarry, at Carlin, Blair county. The boiler house was completely wrecked by an explosion, but prompt action upon the part of a watchman who discovered a fuse running to the tipple, prevented a second explosion. The foreigner denies all knowledge of the affair, but it has been proved that he engineered the deed in order to cripple the quarry and prevent further shipment of limestone to large manufacturing plants in Pittsburg, who are using this material in manufacturing munitions for the allied nations.

The Board of Supervisors of Kings county, Cal., has secured an option for the county on 40 acres of rock for quarry purposes. The value of the tract is placed at $2,000.

The Saratoga Crushed Rock Co. of San Jose, Cal., has been authorized to sell $20,000 bonds to net not less than 98 per cent, the proceeds to be used in paying present indebtedness and extending the company's business.

AN INDIANA OPPORTUNITY.

Charles L. Ireland, Van Wert, Ohio, the surviving partner of the firm known as the Big Four Crushed Stone Co., located at Ingalls, Ind., announces in our for sale column in this number that the properties and equipment will be sold at public auction at the courthouse in Anderson, Ind., on Oct. 14. The plant is in all respects equipped so as to constitute a very successful business investment, being located in one of the richest sections in the state of Indiana, where road improvement and other crushed rock requirements exist to equal a much larger demand than the capacity of the plant. The present road program of eastern and central Indiana recently adopted and now in process of development makes a very attractive proposition for any experienced stone operator who is seeking a location where the picking is good.

RAINS AID IN STIFFENING PRICES.

The Prince-Johnston Limestone Co., which now owns, leases or controls all the railroad stone crushers in Kansas City except one, has improved prices somewhat by its move, has very materially reduced the gross cost of operation of the plants under its charge and has improved formerly demoralized conditions generally. However, the weather has been very much against the profitable operation of stone crusher plants in this section. The Prince-Johnston company operated its plants 15 days in July, 15 in August and 17 in September. The wet weather stood in the way of its getting in any more time. This restricted operation has reduced the supply in the face of fairly good demand and has helped to stiffen prices.

ROAD EXPERTS AT CEDAR RAPIDS.

(Continued from page 26.)

John P. Moran, commissioner, Hendricks county, Danville, Ind.
Harry E. Sanders, commissioner, Hendricks county, Blainfield, Ind.
Ralph Guenther, engineer, Allen county, Ft. Wayne, Ind.
Richard Rayl, commissioner, Tipton county, Sharpsville, Ind.
Joseph G. Hays, commissioner, Marion county, Indianapolis, Ind.
Edward B. Raub, attorney, Marion county, Indianapolis, Ind.
Frank Kattman, city engineer, Terre Haute, Ind.
H. C. Anderson, engineer, Vigo county, Terre Haute, Ind.
G. C. Winslow, engineer, Hancock county, Greenfield, Ind.
Lawrence C. Miller, road superintendent, Marion county, Indianapolis, Ind.

The following representatives of the crushed rock producers were present:

C. E. Ireland, France Stone Co., Van Wert, Ohio.
John Collett, A. & C. Stone & Lime Co., Ridgeville, Ind.
A. B. Meyer, A. & C. Stone & Lime Co., Indianapolis, Ind.
E. H. Meyer, A. & C. Stone & Lime Co., Indianapolis, Ind.
E. B. Taylor, A. & C. Stone & Lime Co., Greencastle, Ind.
J. R. Hiatt, Ohio & Indiana Stone Co., Indianapolis, Ind.
V. G. Pogue, Spencer Stone Co., Indianapolis, Ind.
L. B. Hodgin, Kokomo Stone Co., Kokomo, Ind.
E. T. Milligan, Muncie Stone & Lime Co., Muncie, Ind.
W. M. Forman, Jr., J. B. Speed & Co., Louisville, Ky.
R. E. Greely, Greely Stone Co., St. Paul, Ind.
C. E. Greely, Greely Stone Co., St. Paul, Ind.
F. W. Connell, secretary, Indiana Crushed Stone Association, Indianapolis, Ind.

Tenders for the concrete seawall across False Creek, B. C., to be built by the Canadian Northern Railway, as a part of its terminal scheme, will be called for by the company shortly. Plans and specifications are available at the company's offices at Victoria and New Westminster. The C. P. R. intends, according to an official statement, to award a contract as soon as the bids can be checked and to start construction at an early date. The seawall will be nearly 600 feet long and will have two berthing slips. It will be mainly built of reinforced concrete, following the dock style of construction, such as was adopted for the Great Northern Railway dock on Burrard Inlet. The wall will extend from Champion & White's wharf to the city market slip. The outer edge will be 300 feet from the west side of the bridge, which will be removed when the reclamation work has been completed. The berthing slips will be 150 feet deep and 100 feet wide.

SAND and GRAVEL

Testing Concrete Aggregates at Texas University

Texas produces in round numbers a million dollars' worth of sand and gravel each year. It is consumed chiefly in the manufacture of concrete and in building roads.

This considerable industry has attracted the attention of the University of Texas Bureau of Economic Geology, and, during the past year, the bureau experts have tested about 500 samples of sand and gravel to determine their suitability as road-building material. These tests include all the standard tests devised by the U. S. Office of Public Roads, such as abrasion, cementing value, etc. A bulletin giving the complete results of these tests, together with recommendations of the experts, has been just distributed.

The bureau is now undertaking to do the same work for those Texas producers who are interested chiefly in converting their sand and gravel into concrete.

The first step was naturally to secure the samples. A letter was addressed to each person or firm engaged in the commercial production of sand and gravel or crushed stone, outlining the service intended to be performed and requesting a 500-pound sample. The four firms engaged in producing cement, upon request, agreed to furnish the necessary amount of cement for making the tests. The different brands of cement will be mixed to secure a characteristic Texas cement which will pass all standard specifications.

From each sample of sand and gravel secured, two specimens of concrete will be made, representing the different proportions, one, two, four and one, three, six. In making up the specimens, the variable conditions will be reduced to a minimum, so that subsequent tests of the specimens will reveal as accurately as possible the qualities of the material itself.

When a sample is first received it is immediately tested for voids, both loose and packed; it is then weighed to determine the weight per cubic foot both loose and packed; and is then subjected to a sieving test or mechanical analysis to obtain the grading of the material.

A block of concrete is then made, and also a hollow cylinder. The block is subjected to a compression test when it is 28 days old, and another block of the same concrete is kept for six months, at the end of which time it is subjected to a compression test, thus determining not only its compression strength but giving an index to the amount of strength it gains in six months. For the compression test a 100,000-pound Olsen universal testing machine is used, and for those specimens that withstand 100,000 pounds, a Rhiele 400,000-pound machine is used.

A tension test is also made, as well as an interesting test devised by James P. Nash, testing engineer of the bureau, for determining the resistance, a given specimen will offer to the abrasive action of traffic. Much concrete is now being used in Texas in road building, and this test is therefore of great importance. Mr. Nash makes a hollow concrete cylinder about 16 inches in diameter, and mounts it on a machine constructed to revolve the cylinder. One hundred and fifty pounds of cast iron weights are placed inside the concrete cylinder, and the machine is set in motion. After 10,000 revolutions, the material which has been worn off from inside the cylinder is taken out and weighed, and a percentage of wear is thus arrived at.

When a set of tests has been completed upon a given sample, a full report of the results is made to the producer who furnished the sample, with such recommendations as are deemed advisable to effect an improvement in his product and its economical use. When a sufficient number of samples have been tested, the bureau will issue a bulletin giving the results of each of the tests made in detail, a description of producing pits and quarries, etc., so that any architect, engineer or user of concrete having access to this bulletin can calculate accurately just how much strength he can get out of different mixes, feeling assured that his concrete will really develop the strength he counts upon.

The producers of the state are coöperating in every way in promoting this work, as there has

ABRASION TESTING MACHINE CONTRIVED BY TEXAS TESTING STATION.

been practically no work of this kind done for Texas producers, except in commercial laboratories outside the state.

PITTSBURGH BUSINESS FALLING OFF.

Pittsburgh, Oct. 4.—Sand companies have noticed a falling off in business the past week or two, especially in the way of new orders. Shipments are still fairly good, and those companies which have carload trade are still fairly busy. In general, however, operations have not been coming to the ordering point so fast as was anticipated and considerable disappointment is manifested among sand concerns on this account.

The Keystone Sand & Supply Co. is running its plant on Neville Island full time. Its trade is all in carload lots and practically all of it goes outside of the Pittsburgh district.

O. E. McGavern, who represents the Olean Sand Co., of Olean, N. Y., has been conferring with owners relative to the sale of the Guyler sand land at Kingston, Pa., and also at Perryopolis and Gratztown, Pa. It is reported that a very attractive offer has been made for these, and if the deal goes through it will likely be followed by an immediate development.

The Rodgers Sand Co. is making good deliveries from its river boats and has had a pretty good season all through. Its fleet this fall is the best that was ever seen on local rivers, and this company is in position to make deliveries as promptly as could be asked by the most particular customer.

MEMPHIS SAND AND GRAVEL ACTIVITIES.

Memphis, Tenn., Oct. 4.—R. H. Trezevant, 1628 Exchange building, is developing some stone, sand, and gravel propositions in this district.

The Greenville Gravel Co., managed by Mr. King, is operating several gravel pits in adjacent states and finds an exceedingly healthy outlook on road work, as weather conditions permit. This firm entered the field this year and is finding a vast amount of interest in gravel and macadamized road work, not only in Tennessee but through the Mississippi valley.

Sand and Gravel Brevities.

The Derry Sand Works, at Derry, Pa., which are owned by the American Window Glass Co., of Pittsburgh, Pa., have closed down and may be moved from that place.

Much interest is manifested in the New River Silica Co., which will start operations at once at Thayer, West Va. The company has a capital of $50,000 and will produce 200 tons of silica per day. It has a gravity plant with quarry located 1,270 feet above the crusher building.

The Board of Conservation and Development of New Jersey has ordered the Bennett Gravel Co., operating along the New Jersey Central, north of Farmingdale, to pay the wages and expenses of a watchman to follow every train, so that the adjoining woods may not catch fire and, in that manner, be destroyed. This is something new in the way of the enforcement of the laws regarding that particular question and it is expected that the company will dispute the authority of the board to issue such a demand.

Sauk county, Wis., has opened a new gravel pit at Ableman, which seems to be proving a successful venture. The gravel is mixed with a silica deposit and seems especially adapted for road building. William Gall, president of Ableman village, is in charge of operations and has a large force of men at work in the pit.

NEW SAND AND GRAVEL VENTURES.

The Corning Sand Co., East Corning, N. Y., formerly owned by Robert P. Park, Little Flats, and William P. Wynne, Elmira, N. Y., has been purchased by Park & Son, Corning, N. Y., who are the owners of the sand pits.

The Ideal Washed Gravel Co., Dayton, Ohio; capital, $30,000; incorporators, Howard W. Ivins and others.

Darlington Gravel Co., Bowmanville, Ont.; capital, $40,000; provisional directors, L. W. Reade, C. R. Stein and J. B. Mitchell, all of Bowmanville.

The Mt. Cydonia Sand Co., Chambersburg, Pa., with a branch at Hagerstown, Md.; capital, $18,000; incorporators, J. S. Myers, Charles R. Jones, Rodger Q. Cook, R. S. Burkholder, M. L. Dowden, C. V. Washington, Steffy & Barnheisel, B. A. Bailey, John D. Roland, A. C. Nigh; David H. Morin, treasurer; Alicia E. Copper, and Virginia Hansbrough, all of Hagerstown, Md.

GYPSUM PRODUCTS

A Case of Reabsorbtion.

In a recent number of "Die Toninindustrie Zeitung," a peculiar case concerning the storage of calcined gypsum is reported by a German dealer, who says:

"For many years we have been well satisfied with the gypsum delivered to us from the nearby factories until a short time ago, when our warehouseman reported a shipment of this material to be absolutely no good. After investigating, we held it at the disposal of the manufacturers. To make room for another shipment the gypsum in question was stored in our basement. The management of the gypsum plant promptly declared that if the stuff was found to be no good that they would be ready to take it back. A short time after this correspondence, the inspector of the gypsum concern showed up and the stored material was removed from the basement. Of course, the inspector refused to accept any claim, saying that the damp basement was no fit place in which to store gypsum. We were in no position to contradict such an objection. Nevertheless, the gypsum was tested again and to the amazement of every one present was found to be 'o. k.'

"Then a sack of gypsum was taken from the more recent shipment which had been stored in a very dry and insulated storeroom, and by comparison it was found to be inferior to that which had been previously condemned."

The experienced German dealer stated that it had long been his opinion that the longer gypsum is stored the better it becomes. When ordering gypsum he always made it a practice to order as early as possible, so that the material could be stored a good while before using, knowing that it would meet all requirements by so doing. He referred to a number of tests which he had formerly made that he used for the guidance of his own opinion in such matters, saying, "I systematically tested gypsum for dryness. The percentage of water in fresh calcined gypsum was found to be 4.92 per cent, whereas the half hydrate should contain 6.21 water. Another sample, which had been stored for a period of four weeks, contained 5.91 per cent, while samples, respectively two and three months old, showed 6.18 and 6.17 per cent water. I conclude that gypsum improves by the absorption of some water in storage."

Dr. Von Moye, in his book about gypsum, writes, "Gypsum, which has been burned at a temperature of 180 degrees, containing .4 per cent water, absorbs in three days, when stored in a humid room, 6.25 water from the air. After having been stored in the same way for 25 days, it was found to set excellently."

The conclusion to be drawn from the above discussion indicates that the gypsum had been burnt at too high a temperature and hence has lost too much water, so the material that was stored in the humid room absorbed its missing water from the atmosphere.

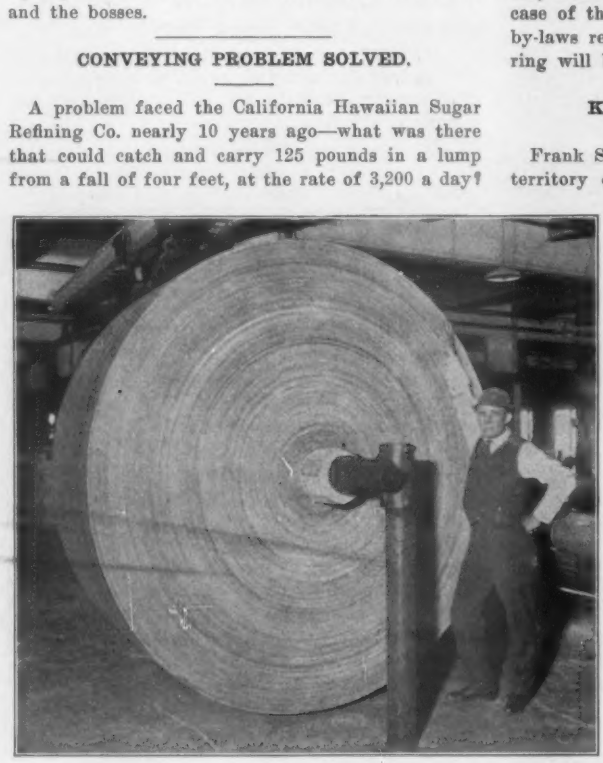
NEW YORK PLASTERERS TO GET INCREASE.

New York, Oct. 4.—In lieu of the enforcement of the steward system by the plasterers of New York upon the bosses an increase in wages amounting probably to not more than 50 cents a day will be conceded, according to a man very close to the committee of which Walter Scott Thompson of the firm of Klee-Thompson Co. is chairman.

The final meeting of the arbitration committee having this matter in hand ever since the bosses locked out the men will be held next Saturday at the rooms of the Building Trades Employers' Association. At that time it is probable that the final agreement will be drawn up and signed, although the exact amount of the wage increase has yet to be decided. The men are at work and are bound to abide by the decision of this committee, which is equally divided between the members of the union and the bosses.

CONVEYING PROBLEM SOLVED.

A problem faced the California Hawaiian Sugar Refining Co. nearly 10 years ago—what was there that could catch and carry 125 pounds in a lump from a fall of four feet, at the rate of 3,200 a day?



GOODRICH BELT FOR SUGAR PLANT.

Feb. 15, 1906, they installed a 36-inch seven-ply Goodrich conveyor belt and since that time it has caught and carried 2,000,000,000,000 pounds of sugar (every bit of it having fallen that four feet) before there were any radical signs of wear. It was a very large belt and was quite an investment, but the service it gave them was way beyond any exceptions.

About one month ago this California concern entered their order with the B. F. Goodrich Co. for another long-lived belt. Gigantic hardly describes it. The man in the accompanying picture is five feet 11½ inches tall, and he cannot begin to reach the top of the roll. The belt is 1,443 feet long, 36 inches wide and weighs 11,983 pounds net.

Figuring eight hours' run without any delays, a bag of sugar would drop into the belt every nine seconds, and if the speed of the belt was such that it could make 26 or 27 revolutions every eight hours, the bags would rest at intervals of 12 feet apart.

At this given speed, therefore, the belt will carry a continuous load of 60 bags, or 7,500 pounds, and every nine seconds its heavily-burdened surface will receive the sudden jolt and strain caused by 125 pounds dropping four feet. Such a service is unusual in its severity and illustrates the great strength of this conveyor belting.

VICTORIA, B. C., FAVORS PLASTER BOARD.

The city council of Victoria, B. C., authorized an amendment to the building by-laws of the city whereby provision will be made for the use, in building construction, of plaster board in addition to the at-present prescribed metal lath in all buildings of the type known as mill construction. The only limit to the use of plaster board will be in the case of the upper floor ceiling, where the existing by-laws requirements of metal lath with steel furring will be retained.

KANSAS CITY GYPSUM NEWS.

Frank Stug, sales manager for the Southwestern territory of the United States Gypsum Co., says that all the plants of the company in the southwest, five in number, have been kept busy this year in spite of the building depression. There has been a lessening of orders, he says, along regular lines, but the special products of the company, "Pyrobar" gypsum tile, "Sackett" domes and "Sackett" board have supplemented the demand and kept the factories busy.

The National Plaster Co. reports that it will get its plant at Watonga, Okla., in shape to resume operation as soon as possible. The plant is of two-kettle capacity and will employ about 25 men. This move is made on the assurance of increased business for 1916. At present the market is disturbed and unsatisfactory, the supply exceeding the demand with some measure of demoralization naturally resulting.

NEW "KAHN" PAMPHLET.

"Kahn Building Products for Railroad Structures," is the title of a recent interesting pamphlet issued by the Trussed Concrete Steel Co., of Youngstown, Ohio. It briefly describes the various products and their particular application to railroad construction problems.

The company, in an introductory paragraph, states that the comparatively wide use of "Kahn building products in important railroad structures results from the merits of these materials and not from any specialized efforts on our part in this particular field."

The pamphlet is well illustrated, including views of the various products and also numerous buildings in which they were used.

The sand men of Kansas City agree that conditions have been materially improved in their business during the past few weeks. The high water made sand pumping difficult and expensive, but the streams are down now and the problem is easier. Practically all the local sand companies have all the business they can conveniently handle at the present moment.

The Springfield Building Material Co., Springfield, Ill., has certified to an increase in capital stock.

CLAY PRODUCTS

NEW YORK BRICK PRICES ADVANCED.

New York, Oct. 4.—Common brick distributors, led by the Greater New York Brick Co., advanced the price of common Hudson brick from the Hudson river district a dollar a thousand Saturday, to take effect today. At that time there was practically no reserve brick in the market and dealers had not begun to stack.

Computations regarding the number of brick in sheds available for shipment into this market during the winter run from 630,000,000 to 800,000,000, which is far below normal quantities. The Haverstraw section has less than a third of this total and the remainder is about evenly distributed between Newburgh and Kingston districts. Raritan brick is fairly plentiful, and prices are quoted at a figure indicating that producers are expecting a higher movement.

September building requirements were fairly heavy and more brick was moved into this district than at any time since last May. The Hudson river barge arrivals up to the first of the month were 1,341 with 1,338 sold, as against 1,235 arrived in the same period last year and 1,230 sold. Last year, however, 800,000,000 were manufactured up the river, and with a three-months' strike at the Haverstraw yards it is very doubtful if more than 700,000,000 were made this season. Last year in August and September building plan filings fell off decidedly. This year New York showed a gain of 36 per cent in building construction in August and September probably will show an improvement of at least six per cent over this total.

From this statement it appears to dealers as though there is nothing else to do but to meet the increase, because the boost apparently is based upon supply and demand, although there is considerable objection to doing so. Newark yard prices were advanced from $6.75 and $7 to $7 for Raritans and $7.25 for Hudsons Saturday.

MILWAUKEE BRICK BUSINESS NORMAL.

Milwaukee, Wis., Oct. 4.—Milwaukee manufacturers and jobbers of brick have been meeting with a normal business this season and indications are that the total business for the year will show a gain over that of a year ago. Most of the jobbing concerns received some fine orders for paving brick this season, as most of the cities about the state have done considerable brick paving. Ricketson & Schwarz, well known building supply concern, secured some especially fine contracts in the brick paving line. The Pennsylvania Coal & Supply Co. also placed some fine business in this line.

W. E. WRIGHT CO. EXPANDS.

The W. E. Wright Co. of Akron, Ohio, has taken over from the Buckeye Sewer Pipe Co. what is known as the latter named company's No. 1 or "Buckeye" factory.

Purchase of this property by the Wright company was made in order that the Wright company may have larger and better facilities for handling the East End business. This property will give the company extensive yard facilities.

The Buckeye Sewer Pipe Company, in selling the 11 acres in East Akron to the Wright company, will combine its factories in the East End.

The "Buckeye" brand of sewer pipe has been famous and stood as a standard throughout the country for 40 years. The increasing demand for same made it necessary, a number of years ago, to build another large factory, which is located on Miller Avenue. The two plants were known as Factory No. 1 and No. 2, respectively. Conditions demanding increased facilities, beyond what was possible at their No. 1 plant, it was deemed advisable to sell this plant and combine the two factories under one roof.

GERMAN MANUFACTURERS PROTEST AGAINST GOVERNMENT PLANTS.

German brick and tile manufacturers are much exercised over the action of the government in establishing an extensive plant for the manufacture of brick and tile in East Prussia. The manufacturers claim that in these times when the industry is suffering on account of loss of business occasioned by the war the government should not start competition for they consider that the production of government-made material supplied without profit or even donated would amount to competition.

The manufacturers' association has filed a protest with the minister of the interior. The demand for building materials in East Prussia has increased enormously. Even before the war there was a strong demand for building tile in that district but since the destruction of the Russian invasion the necessity for replacing so many buildings has made the demand to grow steadily. It is estimated that the Russians destroyed 30,000 buildings. The rebuilding of East Prussia could be promptly started as Russian prisoners of war are available and earnestly desire to be given the employment.

GERMAN KILN DEPRECIATION.

Replying to the question as to what percentage a manufacturer should charge off the cost value for depreciation of clay products kilns, German statisticians have decided that the average life of such kilns is about 50 years. To estimate on it for a longer period of time would lead to miscalculation and disappointment. This, of course, only applies to such kilns as have been built according to the adopted specifications for kiln construction. Where this is not the case the expected period of usefulness will be materially shortened.

In the construction of a kiln it is absolutely necessary when the bricklayers have finished their work that plenty of time be given for the kiln to dry perfectly before being put into action. Usually the more prudent in the matter of drying the better the kiln will be and the longer it will last. Again, in the matter of repeated burning, if burning temperatures are reached too rapidly it will damage the joints of the kiln considerable, drawing the fire suddenly and so inducing a too rapid cooling of the kiln has the same destructive influence on the masonry.

PITTSBURGH FIRMS ANXIOUS TO UNLOAD.

Pittsburgh, Oct. 4.—Brick concerns here are very anxious to unload their stocks. While plants are working fairly well, it is still a problem how to get rid of the stocks they have on hand before winter, and all through salesmen are hustling to the limit to get orders. Building operations are slow, and building brick for this reason are not going out in large quantities—in fact, orders are irregular and pretty hard to get, and prices are low.

News of the Clay Field.

The machinery is being placed for the big brick and clay plant at Marquis, Mahoning county, Ohio. Work on the new building there has been started, and many houses will be built for employes this fall.

Miller & Coulson are running their Ohio plant full and report from their office in the Diamond Bank building, Pittsburgh, that September is not up to standard in either orders or shipments. They are shipping about all the product they make, but they are not buying as large as usually from other concerns. Their product this fall is mostly building blocks, although they are making some foundation tile and expect to manufacture more drain tile and fireproofing next year.

The Kittanning Brick & Fire Clay Co. has been running its plant at Johnsonburg, Pa., at full capacity all the year and is busy there at present. The officials note a tendency all along the line to cut prices. A little improvement is noted in building in some districts, and they believe that the big gain in the steel business will produce a considerable increase in building operations after the first of the year. Their chief complaint is that this year's business has been unsatisfactory compared with last year for the reason that in 1914 many large projects were financed ready for operation early in the year, while this year there was none of these carry-over projects and orders have been all of the pick-up variety.

Ohio Valley Clay Co., of Steubenville, O., has just received an order for over 400 glass house tank blocks to be shipped to Japan. The order is the largest of its character ever placed in the United States.

The Adamantine Clay Products Co., whose plant at N. Mountain, W. Va., was burned lately, will build a plant there with capacity of 50,000 brick a day. Charles D. Cushwa, of Martinsburg, W. Va., is president of the company.

The plant and real estate of the Mifflinville Brick Co., at Bloomsburg, Pa., was sold Sept. 17 at receivers' sale to R. S. Hemingway, attorney, for $17,000.

Brick men in New Orleans are interested in the contract for fire brick for the city's sewerage and water board. Their yearly contract expires about Oct. 10. Allen Tupper, of 625 South Peters street, has held this contract for several years.

On the grounds of the Reynoldsville Land & Improvement Co., consisting of about 160 acres near Reynoldsville, Pa., the Reynoldsville Brick & Tile Co. now has 63 acres of from 30 to 50 feet thick of fine shale, necessary for the manufacture of its products. This shale is brought to the plant by a gravity incline railroad 1,300 feet long. This is then carried to great drying rooms, with a capacity of 40,000 brick per day. It is then placed in one of the ten kilns, three of which have capacity of 150,000 brick and seven with total capacity of 475,000 brick. The company now has the daily capacity of 40,000 finished brick per day. Its manager is Clyde S. Murray, and the company is now employing about 60 people.

CANADIAN MANUFACTURERS TO MEET.

The next annual convention of the Canadian National Clay Products Association will be held at the King Edward Hotel, Toronto, on Jan. 18, 19 and 20, 1916. Plans are being made for a big convention.

R E S U L T S F R O M S E R V I C E

Get Your Man!

Two Englishmen living in Australia quarreled and one fled, followed by the other's vows of vengeance.

The first man said to himself: "The surest way to get him is to go back to London, and wait for him in front of the Nelson monument in Trafalgar Square. He's sure to pass there some day—everybody does."

He kept his post patiently each day, and about six months later spied his man in a passing throng, and "got him."

There are thousands that stand at the ROCK PRODUCTS AND BUILDING MATERIALS post *every day.* It is the spot, however, which *everyone* in the building material industry visits at least *sometime* during the year; and an advertisement, published regularly, will come to the attention of *all* the "worth while" people in the business many times during the year.

ROCK PRODUCTS AND BUILDING MATERIALS is read by—
(1) the Producers of Cement, Lime, Crushed Stone, Sand and Gravel, Plaster, Clay Products, and other building materials.
(2) the retail dealers in builders' supplies.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

:: THE :: BOURSE

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYMENT WANTED

WANTED—Position as Manager of crushed stone plant; have fourteen years' experience and thoroughly understand the practical as well as executive part of the industry. Would prefer working partnership or capacity or low cost bonus for merit. Highest reference furnished as to personality and ability. Address Box 1076, care ROCK PRODUCTS AND BUILDING MATERIALS.

EMPLOYEES WANTED

WANTED—A Mechanical Draftsman who has had experience in charge of a drafting room employing several men. He must be thoroughly familiar with, and have had several years of practical experience in designing, erecting and handling of machinery for elevating and conveying material in factories, warehouses, mills, mines, quarries and sand and gravel plants, also gravel washing and screening machinery. He must also have a complete knowledge of mechanical power transmitting machinery, and its installation. All correspondence from applicants will be kept strictly confidential. Applicants will please give experience and address P. O. Lock Box No. 3097, San Francisco, California.

WANTED—Experienced plaster salesman with good references. None other need apply. Territory Eastern part of Pennsylvania. Address Box 1074, care ROCK PRODUCTS AND BUILDING MATERIALS.

BUSINESS OPPORTUNITIES

BUSINESS OPPORTUNITY.

Charles L. Ireland, as surviving partner of the firm known as the Big Four Crushed Stone Company, will sell at public auction at the Court House at Anderson, Indiana, the quarry, machinery and equipment belonging to said firm, located at Ingalls, in Madison County, Indiana, on the 14th day of October, 1915. This plant consists of quarry land with plant and equipment, and good shipping facilities and is a rare opportunity for anyone desiring to enter into the stone business. For particulars address Charles L. Ireland, Van Wert, Ohio, or Charles K. Bagot, Anderson, Indiana.

FOR SALE—5 Lime kilns in good condition, doing a good business, with 70 acres Lime Ledge, 20 acres Farm Land, 5 Tenement houses, 1 good up-to-date house, 1 store and stock of goods. Must be sold to settle the estate of L. H. Felton at Highgate Springs, Vt. Write for particulars to P. J. Farrell, Swanton, Vt. P. J. Farrell, Swanton, Vt., E. W. Foster, St. Albans, Vt., Administrators.

WANTED—Sand, Gravel or Stone business in exchange for improved farm. Address Box 1075, care ROCK PRODUCTS AND BUILDING MATERIALS.

FOR SALE
An Entire Stone Crusher Outfit

On account of running out of rock we offer for sale at a bargain: One No. 4 Austin Crusher, Screens, Cars, Drills, Tools, Steam Engines, a new Jeffrey Pulverizer, one new Motor, and rails. Address

Moline Stone Company
253 Second Street, Moline, Illinois

PLANTS FOR SALE

FOR SALE—GREAT "WHITE CLIFFS" CEMENT BED In Arkansas. Enough to supply world for century, including 2,092 acres land. Transportation facilities, river and three railroads; land alone worth price asked for all. Sinking wells near it for "Oil and Gas." Fine prospects for both. For full particulars write J. B. DRURY, 406 Market St., St. Louis, Mo.

FOR SALE.

Cement Mill and 110 Acres of land, formerly of Vindex Portland Cement Company and of Reading Cement Company, near Evansville on branch of P. & R. R. R. Company. Capacity 600 bbls. per day. Suitable for producing lime fertilizer or crushing and pulverising rock products. Large cement rock deposits, developed quarry, lime stone plentiful in neighborhood. For information or examination of premises, apply to CHAS. T. NAGLE, Sec'y. BONDHOLDERS' PROTECTIVE COMMITTEE. 916 Centre Ave., Reading, Pa.

FOR SALE—The property and plant of the Great Northern Mining and Railway Co., Limited—situated at Eastern Harbor, Cape Breton, Canada, is offered "FOR SALE." This Company owns the largest and best Gypsum Deposit in Eastern Canada, a fully equipped Calcining Plaster Plant, private Railway (Standard Gauge) from mine to water front and a new shipping pier fully equipped. Correspondence solicited. Address Box 1077, care ROCK PRODUCTS AND BUILDING MATERIALS.

FOR SALE.

Paper Mill. Ideal location. Perfect running order. Electric equipment. Must sell. No reasonable offer refused. Address Box 1071, care ROCK PRODUCTS AND BUILDING MATERIALS.

FOR SALE—An up-to-date Sandlime Brick plant. Running right along and in good condition. A bargain for some one. Address P. O. Box 246, Colton, Calif.

FOR SALE OR TRADE—Up-to-date hollow brick and tile plant. Products sold before made. The J. R. FORD REALTY CO., 931 The Spitzer, Toledo, Ohio.

Receiver's Sale of Limestone and Shale Land

On Tuesday, Oct. 12, 1915, in Hagerstown, Md., will be offered at public sale the property of Potomac Valley Stone and Lime Company of Washington County, Md., consisting of about

160 Acres

of land containing limestone and shale of high quality; also crusher and quarry equipment. Property located along Western Maryland Railway and close to Baltimore, Pittsburgh and other markets. Analysis furnished.

Norman B. Scott, Jr.,
Hagerstown, Md.
For Receivers.

MACHINERY WANTED

Wanted—30" gauge locomotive, must be in first-class condition. Please send photograph specifications, price and state when shipment can be made. YORK SAND & GRAVEL, Limited, East Toronto, Canada.

MACHINERY FOR SALE

FOR SALE—Best empty cement bag baler, smallest price. Also brick and block machines. Address W. BARTEN, Gordon, Nebr.

RAILS

all sizes—small or large lots. New and relaying. We are familiar with quarry requirements and know just what you need. Frogs, switches, splices and all track accessories. Immediate shipment from stock.

L. B. FOSTER CO.
PARK BUILDING PITTSBURGH, PA

Tangible Circulation

Extract of Letter from The Cyclone Drill Co.

"It may be of interest to you to learn that the writer calls upon the quarry trade frequently, and it very seldom happens that 'ROCK PRODUCTS & BUILDING MATERIALS' is not on the desk of the general manager of the Cement or Lime company, or in other words, in the hands of the man who holds the reins and decides what equipment shall be purchased."

Rock Products and Building Materials

BLAST HOLE DRILLS

The "Clipper" Steam Traction

The "Clipper" Gasoline Traction

We make the "CLIPPER"—The drill that is USED!

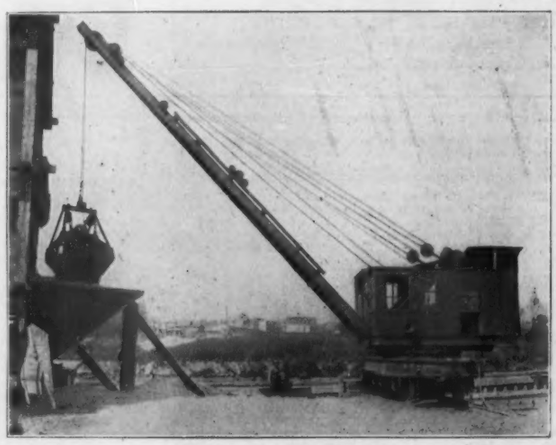
LOOMIS MACHINE CO., TIFFIN, OHIO

IT WILL PAY YOU TO HANDLE THE MODERN FIRE PROOF BUILDING MATERIAL

We manufacture all sizes and shapes from the highest grade shale by the most modern process, including backing up, partition, floor arches and hollow brick; also DRAIN TILE.

VIGO-AMERICAN CLAY CO.
25 So. Seventh St., TERRE HAUTE, IND.

"ON THE JOB"



The Artesian Lime and Stone Co., Chicago, have solved an important cost problem in the handling of crushed limestone. By the use of a

McMyler Locomotive Crane

they are operating now at a great increase in efficiency and reduction in cost.

Our Engineering Department is ready to co-operate with YOU for a more efficient handling of your material.

THE McMYLER INTERSTATE CO. Dept. P-4 CLEVELAND, O.

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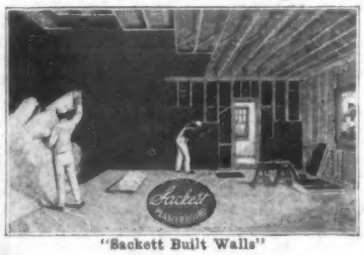

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